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IN THE MUNICIPAL INDEX AND ATLAS (the annual reference volume of data and condensed catalogs published by the American City Magazine Corporation) readers will find statistical material, and articles on a wide variety of municipal and public works subjects, not published in the monthly issues of the magazine.


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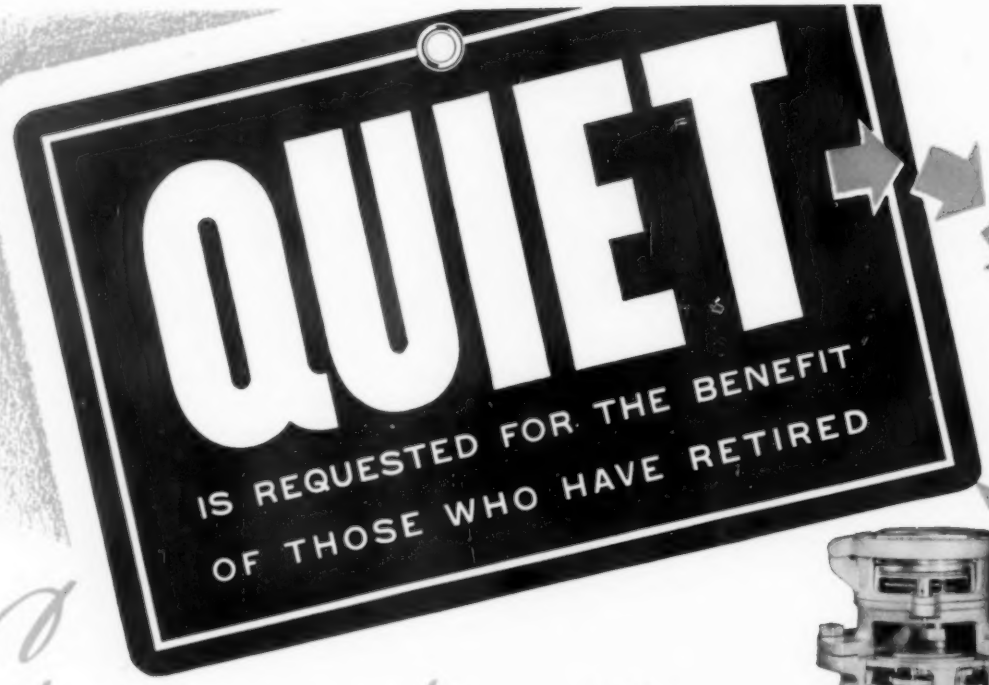


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*Remember*—PITTSBURGH IMO METERS WEAR IN WHERE OTHERS WEAR OUT

# Housing and National Defense

## *Permanent Values in the Defense Housing Program*

PROMPT action and clear-sighted policies may make it possible for America not only to meet the housing needs of the defense emergency, but also to create permanent housing assets for the future, Miles L. Colean, Director of Housing Research for The Twentieth Century Fund, declared on October 14 in addressing a luncheon meeting of the Citizens' Housing Council of New York, at which Dr. Frank Kingdon, Educational Director of the Citizenship Educational Service and former President of the University of Newark, presided.

Pointing out the advantages that may be gained from the emergency, Mr. Colean said:

"In the first place we may benefit from the full utilization of our existing housing resources. The scarcity of vacancies may prompt a considerable amount of repair and rehabilitation. If undertaken wisely, this work may help restore the usefulness of areas of our cities that have been suffering a decline. In many places we may get important additions to the housing stock which may continue in the future to serve the low-cost housing need."

The speaker told how the production of guns and munitions during the World War was hampered by housing shortages. He urged a policy of "selective location" of defense industries as the best means of avoiding housing difficulties in the current emergency. He recommended "the placing of defense activities—so far as military and industrial conditions permit—in localities where labor and housing conditions are favorable."

Private industry should "meet the bulk of the need" for defense housing, said Mr. Colean, who recommended that it be "supplemented by the usual forms of government aid." He pointed out that in certain instances where a high concentration of defense activities placed too great a strain on local building resources "it will be necessary for the Government to step in and build."

Contrasting present conditions with those of 1917-1918, the speaker pointed out that:

"Our building industry is in far better shape to meet emergency needs. It enters the emergency with the momentum of an upswing behind it. . . . We have in the interim learned a great deal about low-cost housing. Moreover, with the sharp decline in interest rates and the accumulation of great masses of capital, our financial facilities are much superior to those of the World War period." He warned, however, that some improvements in the building industry are needed. "Now, if ever, is the time to free housing production from the arbitrary restraints which have been placed upon it to spread work, to use unnecessary materials, or to protect the position of traditional interests."

## *Housing—The Physical Framework of Democracy*

"OUR purpose is to create in this land of ours a nation dedicated to liberty and opportunity for all its people. We are far from the goal, but we are on the way," said the other principal speaker at the above-mentioned meeting, John Ihlder, Executive Officer of the Alley Dwelling Authority for the District of Columbia. Here are his concluding words:

If the strength of a democracy lies in the strength of its people, and if an increasing part of its people are born and reared in unfit dwellings, then it is time for action. There will be pleas for postponement—today we must devote all our thought to national defense. There never was a time when there were no pleas for postponement in housing. In time of shortage we are told that we must use all we have, we cannot vacate unfit dwellings. In time of surplus it would be folly to build more. In time of danger of war we must think only of defense.

On the last we can agree, remembering that now it is total war which requires total defense. Today it is not soldiers alone who go to war, it is whole peoples. Today it is not weapons alone that win wars; equally important is civilian morale.

Much of the world's progress has come during times of stress when men were keyed to their utmost. We today, champions of democracy, must be prepared not only to defend democracy but to justify it. The character of our people, the character and the worth of their institutions will be evidenced by their dwellings.

## *From Defense Housing Coordinator, C. F. Palmer*

IN a letter of October 11, 1940, to the Citizens' Housing Council of New York, Coordinator Palmer wrote: "In the present emergency situation, speed is an important consideration. We must move rapidly, but we must recognize that it is as easy to build a house quickly that comes up to adequate standards, as to build one that repeats the old mistakes of bad planning. In this positive sense we can contribute to the decent living which helps to protect our democracy against the breakdown of social standards within.

"Our purpose is to provide housing for the families of enlisted personnel, for civilian employees in the Army and Navy, and for workers in industries producing defense materials. Five main channels will be utilized: (1) private housing; (2) the RFC equity purchase plan; (3) the Federal Works Agency; (4) the United States Housing Authority; and (5) the armed forces.

"Private capital is being encouraged to act by leaving to it the entire field of housing for sale. The RFC equity purchase plan is being used in areas where the need to house workers is acute and is not otherwise being met. The Federal Works Agency will take care of temporary needs which none of the other measures are prepared to provide, and which require direct construction by some Federal agency other than the Army and the Navy. Local authorities and the United States Housing Authority will meet the need of the families of low income unable to pay commercial rents in areas where competent local housing authorities exist, and where funds are available. This housing will be developed and operated by local people who know the needs and desires of the families they serve. The Army and the Navy will build and manage most of their own defense housing projects with the assistance of local housing authorities in some cases, except that the Army will use Federal agencies for construction more extensively than the Navy. Funds for carrying out this program total $300,000,000.

"We who are working in Washington are doing everything in a physical sense to effect a coordinated program, but the achievement of our objective depends in a larger sense upon people everywhere recapturing the spirit of those who built our nation."

## *A Statement of Policy*

AT its October meeting the Board of Directors of the Citizens' Housing Council of New York adopted the following statement:

*Strengthen America's home defenses:*

(1) By providing adequate shelter for the workers in our defense industries and for the men in military training;

(2) By recognizing that a strong framework for democracy requires decent housing for all Americans, millions of whom are now living in slums.

*To meet these needs in the present emergency, the Citizens' Housing Council of New York urges:*

(1) That ample appropriations be made of Federal funds for defense housing, whether New York is eligible for any such funds or not; and that, wherever possible, defense housing shall be so designed as to add permanent values to communities rather than to produce future slums or "ghost towns";

(2) That, unless and until the defense program should develop an actual shortage of the materials and man-power required for the construction of large-scale, low-rent housing projects, public and private efforts be intensified to the end that housing facilities and neighborhood conditions for all income groups may be brought into conformance with our ideals and our capacity to produce. By advancing the welfare of America we can strengthen America's defenses as well.

# OUR PART IN NATIONAL DEFENSE

*Walter S. Gifford, President, American Telephone and Telegraph Company*

*THE BELL SYSTEM IS A NATION-WIDE TELEPHONE SYSTEM — READY TO SERVE THE UNITED STATES IN NORMAL TIMES OR EMERGENCY. IT HAS . .*

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5. A source of supply — the Western Electric Company, devoted to telephone manufacture.
6. A great laboratory that brings the advance of science to bear on the improvement of telephony.
7. The financial strength to keep going and work ahead for the future.

* * *

Each is important. All are necessary for good telephone service from day to day and for the needs of national defense. It is the organization, the team-work, that counts. That means trained, experienced men and management, working together and planning ahead, so that the right material and the right "know how" will be at the right place at the right time.

Walter S. Gifford

THE BELL SYSTEM IS READY TO DO ITS PART IN THE NATION'S PROGRAM OF NATIONAL DEFENSE

# Our Municipal Notebook

## *"People Come First"*

EVERY PUBLIC OFFICIAL who is interested in the progress of his city should make a particular point to see "People Come First," the new color movie on city life and transportation produced by the American Transit Association.

First of all, the picture tells the fascinating story of the growth of modern cities from their beginnings as trading posts in the wilderness. Second, it dramatizes the problems of traffic and transportation that concern every public official today. Both the good points and the bad features of city life are brought out in the movie. Special emphasis is placed upon traffic congestion, the use of proper traffic control, and the necessity of adequate transportation facilities.

"People Come First" is soon to be shown in a score of cities. It can be shown in your city too. Ask your transit company president about it. The picture does not attempt to sell you something, but after seeing it you may want to do something. The movie will broaden your appreciation of the complex factors that affect the life and progress of a city. You will find that pride in your own community will be mingled with a new sympathy for it.

In describing the amazing growth of American cities, the picture says: "The town came out of man's need for a hub, for he could sell what he grew and buy what he needed. Out of the town the city grew; its heart the market-place; its life's blood the coming and going of the people it served. To carry out their jobs, the men must scurry through a network of streets and avenues. The countryside is pushed back further and further. The city has become a gigantic anthill."

When living was more leisurely a few decades ago, the picture explains, our streets were more than ample to accommodate all those who wished to use them. Today, they seem to be wholly inadequate to meet the demands of modern living. Every city official, every city planner, and every traffic engineer, is seeking a solution for the problem of traffic congestion.

"Must we completely rebuild our complex anthills?" asks the picture. The streets have become rivers of traffic with cars moored solidly along their banks. Of what use is such a condition to the stores? Of what use is it to anyone? Are the people in the cars having pleasure, are they reaping profits, is this river of traffic of such vast importance that the city's streets must be widened at ruinous expense to accommodate it and encourage its further growth? What's the answer?

Here and there among the cars will be discerned certain large craft known as street cars, trolley coaches or buses. How many automobiles can you count in both directions in that jam? One hundred and forty? Do you know that two or three street cars or supercoaches could carry seated all the people in those 140 automobiles? Do you know that half a dozen trolley coaches or buses could transport all the people between those curbs?

"Why shouldn't they ride together?" asks the picture. "They were going in the same direction at the same time when they caused all the congestion."

Many a man and woman has said, "If I ever get out of this jam, I'll remember to keep out of it." But the jam is always there.

It is time that municipal officials look at the traffic problem with a solving eye. The means are available. And the result can be achieved with our present streets, if we adopt modern methods of traffic control, and if we recognize that the true function of our streets is to facilitate the movement of people, not the mere movement of vehicles—which are just a means to an end. People come first.

If you are interested in building a better and happier city, if you are anxious to speed the flow of traffic on your present streets, if you are wondering about the pattern of things to come in city development, by all means see the movie "People Come First." It will serve as a good beginning for constructive thinking.

*The interesting color movie of the American Transit Association shows how the use of modern city transportation saves nerves and reduces downtown traffic congestion*

## *Beating a Parking Meter*

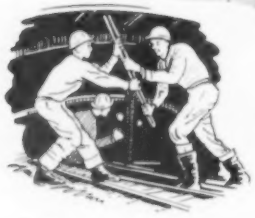
A GREAT MANY CITIES regulate parking by manual parking meters. The parker inserts a coin and turns a handle. Does he or she *always* turn the handle? In view of an experience just reported by the city of Lincoln, Neb., one might go a step farther and ask, does he or she always insert the coin? It seems that a man and his wife parked downtown near the car of two local detectives. While the lady went into a shop, her husband stood for ten minutes holding a penny next to the Miller parking meter slot. When she reappeared, he put the penny back into his pocket and they drove away. Where there's a will there's a way. Fortunately, much more than 99 per cent of people are not built that way, but far prefer to turn cranks, insert coins and otherwise observe laws.

## *Tree Mover for Miami*

A TREE MOVER has been purchased from Freeman & Sons, Inc., Miami, Fla., dealers in trucks. The mover was assembled and built according to plans and specifications prepared in this Department. The contract specified an EHU Model Mack truck, the winch to be manufactured by Mead-Morrison Division of Garwood Industries, Inc., Detroit.

On the truck is mounted a timber "A" frame with 17-foot boom and a four-drum winch. Tree movers usually have three drums, but owing to local conditions a fourth drum was added in our design for the purpose of reeling a cable to be used for pulling the tree mover unit when bogged down in soft sand.

WILLIAM SYDOW,
Director of Public Service, Miami, Fla.



*for the*
*City of Chicago*
*Subway Project*

AT locations over and adjacent to the new subway, the City of Chicago is replacing existing water mains with steel pipe. Experiences at New York and Philadelphia have shown that large diameter steel pipe, because of its superior strength and great ductility, will resist with adequate safety the stresses resulting from shock, settlement, vibration and high pressures.

Please address our nearest office for information or quotations on large diameter welded steel pipe to meet your requirements.

*The top view shows sections of welded steel pipe being loaded for delivery to the City of Chicago. Directly above are three pipe sections enroute to the job.*

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When you write for that catalog, kindly mention THE AMERICAN CITY.

# Water Works--Public Relations

## *The Outraged Consumer*

DRAMATIS PERSONAE:

Mrs. X.—the Outraged Consumer

Mr. W.—the Water-Works Superintendent

Scene: A small town street where a new connection is being made for a fire hydrant.

O.C. approaches, filled with indignation.

W.W.S. looks her straight in the eye, for he has seen the type before.

O.C.—When are we going to get water again?

W.W.S.—Where do you live?

O.C.—In that white house with the blue shutters over there.

W.W.S.—Weren't you notified that the water was to be shut off at 10 this morning?

O.C.—Yes, but how am I going to get dinner?

W.W.S.—Didn't you draw any water when you were notified?

O.C.—Yes, for breakfast, but I threw it out afterward.

W.W.S.—You can get some water at the green house over there. I am sorry you were inconvenienced.

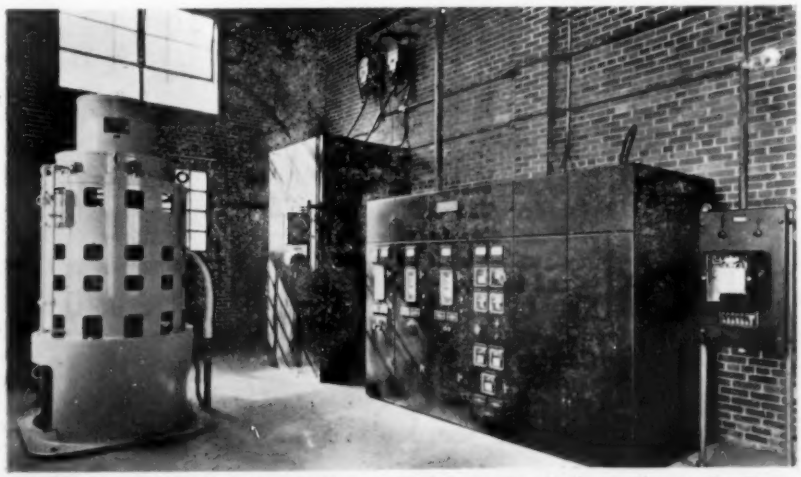
Ten minutes later the lady was seen meekly crossing the street, but still with a disgusted look on her face, carrying a blue enamel kettle in one hand and an aluminum kettle in the other, headed for the neighbors.

## *New Pumping Station Protected from Floods*

ONE OF THE MOST MODERN DEVELOPMENTS in river pumping stations for a municipal water works to date is in the new Covington, Ky., pumping station which furnishes water to Covington and adjacent communities. The project, which replaces the old station inundated during the 1937 flood, is so constructed that no floods of 12 feet higher than the record 1937 flood, will cause interruption in service.

All the indoor electrical switch equipment is housed on the second floor of the new building, the upstream side of which is reinforced to withstand the impact of large and heavy floating bodies. A pump with a capacity of 10 mgd against a total dynamic head of 390 feet is driven by a Westinghouse 800-hp vertical synchronous motor, which is also housed on the second floor of the building.

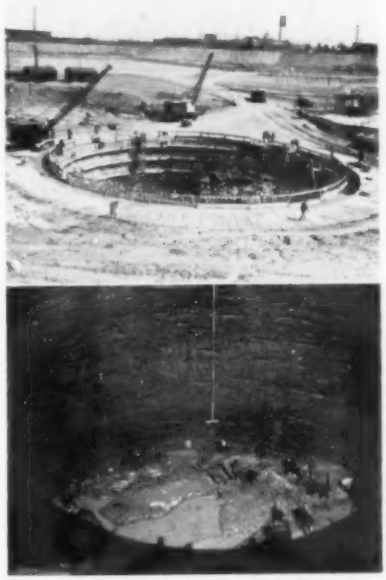
Three-phase 230-volt current and single 115-volt station service for auxiliary station power and for lighting is obtained from a 30-kva, 13,200/230-115-volt transformer bank located in a new outdoor substation adjacent to the pumping station.



*Interior of the New Pumping Station at Covington, Ky., Built to Elevate the Pump Motor and Switch Gear Above Highest Flood Waters*

## *New Intake Screen Well for Cleveland Supply*

ONE OF THE LARGEST INTAKE WELLS in the country has been excavated in Cleveland, Ohio, as part of the new 200-mgd water plant for the northeastern section of the city. Measuring 103 feet in diameter and 110 feet in depth, this screen well is being lined with concrete and will receive raw water from Lake Erie through a 10-foot tunnel to be constructed beneath the lake floor. Conduits will take the water from the well to a chemical house and thence to the coagulation basin and filters.



*Top and Bottom of the Cleveland Screen Well During Construction*

Excavation of the well presented several engineering problems and required some 30,000 pounds of dynamite for blasting the hard shale. The shots were as much as 100 pounds each and were set off each evening after the men had quit for the day. The large blocks of shale thus loosened were drilled and loaded into 1-cubic-yard buckets handled by power shovels at ground level.

Construction of the concrete sides and bottom of the well will involve 234 tons of reinforcing steel and some 12 carloads of lumber for forms and scaffolds. Low-lift pumps, shaft-driven, with the motors on the operating floor above water level, will be located near the bottom of the pit. Eventually the well will be covered by the pumphouse structure.

The completed Nottingham water-treatment plant, of which this well will be a part, will cover an area of 75 acres, and will be the largest water plant in the city. All the work described, and in addition the excavation for the coagulation and filter beds measuring 720 x 600 feet, and the 50-mg reservoir, were built by WPA, sponsored by the Department of Public Utilities of Cleveland. The 10-foot intake tunnel is to be constructed under contract with its intake 5 miles off shore, and the tunnel itself 50 feet below the lake floor. It will connect with the screen well, which is 1.8 miles inland from the lake shore.

# THE GAMEWELL POLICE SIGNALING SYSTEM

## *A Major Defense Against Crime and Fire*

The system includes the telegraphic code signaling, telephone, and recall features, all basic elements in police communications and contributes to public safety by ensuring an adequate patrol of the policed area and fire district. And, by providing for the swift and convenient transmission of emergency signals in cases of accident, riot, or serious crime, protects both the citizens and the police. Traffic police and other officers on fixed posts are enabled to promptly report accidents and other emergencies without leaving their posts. The recall feature enables the central station to call the patrolmen individually or collectively or to transmit to them instructions in secret police code.

A recognized factor in fire protection, the system also lends itself readily to the extension of police protection and supervision to industrial establishments, banks, hotels, and other special hazards. Citizens are also enabled to quickly secure police assistance.

### A MUNICIPAL UTILITY

Invaluable as a defense against fire and crime the system is a municipal utility of exceptional merit, providing a readily accessible telephone service for all municipal employees such as maintenance men of the various departments as well as for private watchmen, mercantile police, and special officers outside of the police department.

**Type CX Police Operating Desk** as recently installed in Pittsfield, Massachusetts. The automatic recording outfit with time and date stamp is mounted on top of the cabinet and displays the recorded signals in full view of the operator. The desk and cabinet are of art metal. The manual transmitter at the right of the operating panel provides for a multiplicity of recall signals in code to the patrol force and for the transmission of emergency signals to the garage, hospital, and fire department. Gamewell central station equipments have been redesigned, simplified, and all operating parts increased in strength and efficiency.

### Police Patrol Box—Exemplar Type

Equipped with three calls — Report, Emergency, and Telephone. The telephone service may be made to connect through the police central station with all police bureaus, officials, and other municipal departments. Multi-call boxes capable of transmitting from four to seven code signals are also available.

### Police Recall Signal

The signal light is contained within a red Fresnel lens supported by a cast aluminum body. The dark shade contributes to effective signaling both by night and by day.

*Write for Catalog*

## THE GAMEWELL COMPANY

NEWTON UPPER FALLS, MASS.

# Public Safety

## *A Handful of Police Radio*

TO THE Editor of THE AMERICAN CITY:

We believe your readers will be interested in the enclosed pictures of the "belt radio" used by our Police Department.

The set uses three acorn tubes in a super regen circuit and is built in an aluminum box measuring 3½ x 3½ x 1½. This box also contains the filament battery, which is a No. 2 flashlight cell. The set complete with A battery and tubes as shown in the picture weighs 15 ounces.

The B batteries range from 54 to 90 volts according to the volume required. These are located beneath the box in the leather case. The case measures 5½ x 3¾ x 1¾ inches. The radio operates from an antenna worn over the officer's shoulder. The earpiece is a trim featherweight. The complete outfit weighs 29 ounces.

The efficiency of the unit is increased by compact construction, and

*Officer on Harley-Davidson motorcycle*

*carries receiver at belt*

police stations throughout the country, operating on our local police frequency, are heard. There are no dead spots in town, either inside or outside of buildings. This is demonstrated by the fact that our station can be received very well in the Convention Hall garage located in the basement of the Hall 15 feet below street level. It is impossible to receive local broadcast stations on a sensitive automobile set under the same conditions.

We are at present successfully using these radios on our motorcycle men. The sets are designed and built by myself, and are put in service as fast as constructed. We hope eventually to have every man in the department so equipped.

The call letters of our station are WQIY, having a power output of 50 watts, operating on a frequency of 33.1 megacycles. There are 13 cars licensed for two-way communication.

LAWRENCE SMITH,
Supervisor of Radio,
Department of Police, Atlantic City, N. J.

## New Fire Truck Carries Everything But the Mayor

### It Has Radio Phone And Jack That Can Lift a Subway Car

The "first scientifically designed rescue truck"—new Rescue Truck No. 1—was inducted into service today by the Fire Department. It has two-way radio telephone, portable cutting torches and a hydraulic jack capable of lifting 30 tons. The jack can pick up an Eighth Ave. subway car. The truck weighs 14 tons and cost $18,500.

But when photographers asked Fire Commissioner John J. McElligott to look over the company's new bakelite helmets, they found the six-foot-two, 200-pound Commissioner looking over the unit's old leather helmets.

**Recalls Days of Youth.**

"You know how it is," the Commissioner explained. "When you get old (he's 58) you like to look at the old things."

**All Can Hear Orders.**

The new truck's two-way radio telephone has a loud speaker public address system, the only one of its kind.

The two portable oxyacetylene cutting torches can slice through virtually any metal. In contrast with the old apparatus that required two men to carry, the new one can be used on a ladder.

The gasoline pump smoke ejector replaces a hydraulic ejector which could only be used outdoors, because the water it used would flood a house.

New bakelite helmets with zippered ear flaps for winter wear are to be worn with the new lightweight oxygen apparatus. The whole business weighs 20 pounds against the old diving bell type's 48 pounds.

Rescue No. 1, commanded by Capt. George F. Hughes, covers Manhattan from the Battery to 96th St., and answers Staten Island calls as well. It answers 135 boxes on the first alarm, more than any other piece of apparatus in town.

## The Well-Dressed Fireman

Lightweight, streamlined oxygen helmets became part of the equipment of the Fire Department's Rescue Co. No. 1 today. The old type (left) weighed 48 pounds, while the new model weighs only 20 pounds. World-Telegram Photo by Lynch.

PUBLISHED BY PERMISSION OF NEW YORK WORLD-TELEGRAM

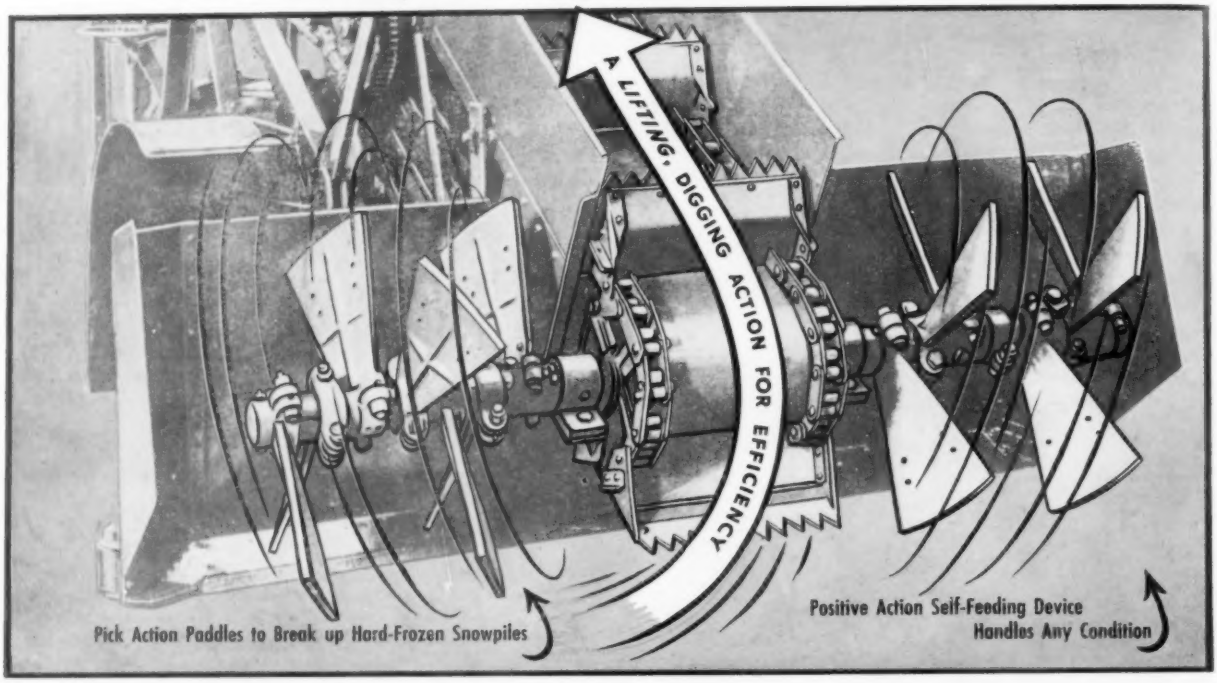
*New York's Rescue Fire Truck No. 1 is equipped with two-way radio of General Electric make. The gasoline-driven smoke ejector was manufactured by the Homelite Corp., Portchester, N. Y., and consists of a 2-cylinder pump supplying 7,000 cubic feet of air per minute. The bakelite helmets, oxygen masks and All Service gas masks were furnished by Mine Safety Appliances Co., Pittsburgh. The oxyacetylene cutting equipment was made by Kerotest Mfg. Co., Pittsburgh. The truck also carries a 5-ton Car Wood hoist*

## *Penny Parking Is Popular in New Haven*

THE CITY OF NEW HAVEN, CONN., is now operating 1,156 Mark-Time and Mi-Co parking meters. By far the larger number of these are penny meters—one cent for 15 minutes and two cents for 30 minutes. The original installation was described in the Sept., 1939, issue of THE AMERICAN CITY, and since then we have extended our meter system by 646 meters. The exceedingly favorable results described in that article have persisted. These penny meters average 21.3 cents per meter per day, compared with 21.7 cents per meter per day for the nickel meters. The meters are manually operated, and, incidentally, for more than a year we have not found any parker deliberately omitting to turn the crank of the meter.

PHILIP T. SMITH,
Chief, Police Department, New Haven, Conn.

# HOW TO LICK the Snow Loading Problem in any kind of weather...


A LIFTING, DIGGING ACTION FOR EFFICIENCY
Pick Action Paddles to Break up Hard-Frozen Snowpiles
Positive Action Self-Feeding Device Handles Any Condition

*NOW on*
**CREEPER TREADS**
(MODEL 75C)
**or**
**PNEUMATIC TIRES**
(MODEL 75W)

MECHANICALLY right! The Haiss Snow Loaders apply force to get work done. The digging flights get under and ***lift*** the snow, instead of trying to lift the machine. For better than 20 years Haiss has built Loaders generally acclaimed the best of their kind. The 1941 Snow Loaders are of the same rating—big, powerful machines, to travel at good speeds, to dig with a power-crowding drive, to start in sub-zero cold and work 24-hour shifts. There's a new catalog just off the press. ***Write for a copy.***

**GEORGE HAISS MFG. CO., INC.**
**140th St. & Park Ave. New York, N. Y.**
DISTRIBUTORS IN ALL PRINCIPAL CITIES

**HAISS**

# Guarding the City's Health

## *Clean Eating Utensils Possible, If Required*

THE EXTENT TO WHICH DISEASE GERMS ARE DISSEMINATED in public eating and drinking places, such as restaurants, lunch rooms and beverage "parlors," is a matter of public concern, states the *Journal* of the American Medical Association. Numerous organisms, such as hemolytic streptococci, pneumococci and diphtheria bacilli, have been discovered on tableware and hand-washed dishes.

A bacteriologic survey was made in the town of Peterboro, Ont., of eighteen, mostly small, public places in which food or beverages were dispensed. All but three had double metal sinks. All used towels for drying purposes. Bacteriologic specimens were obtained by rubbing sterile swabs at least three times over the entire area of spoons, forks and tumblers that would come in contact with the user's mouth. These specimens were taken after the noon or evening "rush" period after the utensils had been washed and made ready for use. Samples of wash and rinse water were taken by means of sterile pipets and placed in sterile vials. The temperature of the wash water varied from 95° to 140° F., that of the rinse water from 48° to 150° F.

On the assumption that a plate count of 100 is a reasonable maximum to be set for eating utensils, laboratory examinations showed that more than half of the restaurants were not properly sterilizing the utensils or satisfactorily cleaning them before sterilization. They disclosed the presence of colon bacilli, diphtheroids and streptococci in 90 per cent of the specimens. The total number of organisms ranged from 10 to 35,000. The total number of bacteria in wash water was between 100 and 400,000, while that of the rinse water was from 2 to 47,000.

A follow-up survey was made several months later after a chlorine concentration of 100 parts per million had been proposed, double sinks installed where previously lacking, proper instructions given and periodic checks made to determine whether the chlorine used in the rinse water was of sufficient strength. The results were highly gratifying. After sterilization with chlorine solution, the bacterial count per utensil was found, in all but one case, to be below 100, and in many instances organisms such as colon bacilli were not detected either on utensils or in specimens of the rinsing water. Only four specimens of wash water and one of rinse water exceeded 1,000 bacilli.

Since the temperature range of the wash water and the rinse water was the same as in the preliminary survey, the whole credit for sterilization is given to chlorine, a simple and inexpensive sterilizing agent. The report emphasizes that two sinks are essential for prophylaxis, that drying by hand towels has no place in any system of dish-washing in public places, and that the mere dipping of unwashed glasses in a chlorine solution without previous cleaning is insufficient.

## *New York Attacks the Mosquito Pest*

UNDER THE DIRECTION of the Department of Sanitation and the Department of Health of New York City, extensive operations were carried on during 1939 to control mosquitoes. Approximately one-ninth of the total area of New York City, about 35,000 acres, consists of salt marshes upon which countless mosquitoes can develop and spread to all parts of the city, unless adequate measures are taken. The work includes drainage ditches, elimination of breeding places such as swamps, pools, cesspool overflows, flooded cellars and other collections of stagnant water, and the control problem through the use of larvicide.

The standard New Jersey mosquito larvicide is used with high-pressure sprayers mounted on trucks for the larger breeding places. Application of the larvicide to catch-basins, manholes, areaways, cellars and other small breeding spots is made with long-spout watering cans. The larvicide is essentially a solution of pyrethrum in kerosene or other light fuel oil, made miscible with water through the use of an emulsifying agent. It is purchased in concentrated form and is diluted with nine parts of water to each part of the stock emulsion before use. When sprayed on water, a thin film of pyrethrum-bearing oil is formed on the surface. This film is toxic to mosquito larvae and pupae but is harmless so far as man, animals, birds and fish are concerned.

During 1939 an average of eight pressure spray trucks per day were required in the breeding season. Two additional trucks of this type were assigned to the World's Fair and were operated by that organization. A total of 235,150 gallons of diluted larvicide were sprayed during the season by Department of Sanitation crews, and 135,400 gallons were sprayed by the World's Fair squads, making a grand total for the city of 370,550 spray gallons.

## *Quarantine Regulations in Dayton, Ohio*

AN INTERESTING ABSTRACT has recently been issued by the Division of Health, Department of Public Welfare, Dayton, Ohio, of the quarantine laws and regulations in effect in that city, as follows:

All persons in a quarantined house must remain on the premises at all times. Under certain conditions a wage-earner may be permitted to leave the house (and remain away). He must have a pass from the Division of Health. The conditions under which passes are obtained depend upon the home conditions, the isolation possible, and the type of work done by the wage-earner. There must be a responsible adult in the house at all times.

*Diphtheria.*—Quarantine follows either clinical diagnosis by the attending physician or a positive culture report from the laboratory. The administration of antitoxin by the physician is considered the same as a clinical diagnosis; however, the physician may give antitoxin and request a temporary quarantine, withholding his final diagnosis until later. Exposed persons are required to have negative throat and nose cultures before they are granted passes.

Release from quarantine is obtained by having two negative throat and nose cultures taken 48 hours apart. The first release culture is taken at least seven days after diagnosis is made or antitoxin given. All other persons living in the house are released by having two negative cultures 48 hours apart. Carriers (persons who have positive cultures but are not sick) are released the same as cases. Chronic carriers may be released if tests show the germs in the throat to be avirulent.

*Scarlet Fever.*—Patients are quarantined until recovery is complete and until all abnormal conditions of the nose, throat, and ears have disappeared. In no case shall a patient be released under 21 days. Those persons who are immune by reason of having had the disease may be permitted to live outside. The records of the Health Division shall be the only competent evidence to establish this claim.

*Smallpox.*—For the patient: Isolation until recovery is complete and desquamation has entirely ceased. For exposed persons: Those who have been successfully vaccinated or who have had smallpox may live apart. Others are quarantined for 17 days.

*Poliomyelitis.*—Quarantine until recovery is complete. Never less than 21 days. Child contacts in the home must remain in quarantine for 21 days. Wage-earners may be permitted a pass if satisfactory isolation can be accomplished.

*Meningitis.*—Quarantine for 14 days after onset or until negative cultures from the nasopharynx have been obtained.

# For the past two years the City of Cleveland has been chosen as the nation's *"Safest Big City"*

● **Able men and "stand-by" equipment made Cleveland's safety record.** *Above, left to right, are:* Mayor Harold H. Burton; Mr. Miles E. Evans, Director of Public Service; Mr. A. M. Allen, Commissioner of Motor Vehicle Maintenance, and Mr. Charles J. Sheets, Commissioner of Streets, all of the City of Cleveland. Behind the group is one of the Rock Salt Rotary Spreader Trucks, maintained fully loaded and ready for work all winter long.

● **The awards**—Bronze placques awarded the City of Cleveland as the nation's "Safest Big City" by the National Safety Council.

**IMPORTANT IN THIS SAFETY RECORD ARE SAFE WINTER STREETS KEPT CLEAR WITH**

## *ROCK SALT*

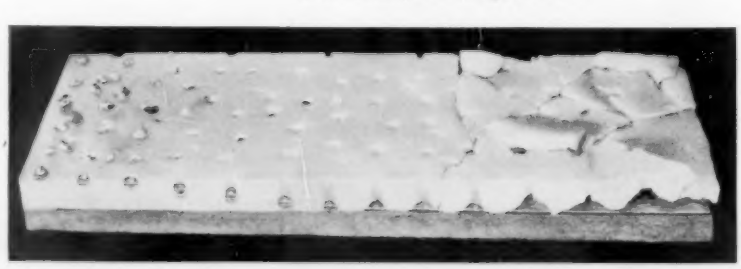
FOR TWO YEARS in succession, the City of Cleveland has earned the National Traffic Safety Award of the National Safety Council, for cities of more than 500,000 population. This remarkable record of safety is due to the use of every modern method of traffic control, including the established practice of making winter streets safe by preventing accumulation of snow and formation of ice by the use of Rock Salt.

The officials of Cleveland are frank and free in their statements that the use of Rock Salt in keeping streets open and clear in winter contributed a great deal to the excellent traffic safety record. Cleveland has found that the proper use of Rock Salt not only provides utmost safety, but also reduces the costs required by other methods for men and machines.

Cleveland maintains "stand-by" equipment—modern trucks ready loaded with Rock Salt for immediate action. The Rock Salt is spread on the streets at the very beginning of any storm. This alone is often enough to melt all snow away—and in heavy storms, it prevents snow from packing and bonding to the pavement until it can be removed by plows. Any city, town or village, no matter how large or how small, can have safer winter streets by using Rock Salt straight according to directions of International engineers. For full information, write for a copy of the folder, "Rock Salt's Auger Action."

**INTERNATIONAL SALT COMPANY**
INCORPORATED
**Scranton, Pennsylvania**

● **"Auger Action"**—This is a photographic reproduction of an accurate model showing Rock Salt's "Auger Action." (1) Spread on hardpacked snow or ice, International's Rock Salt imbeds itself at once, providing immediate "anti-skid" protection. (2) As Rock Salt bores its way downward, brine is formed which undercuts the icy covering and loosens its bond with the pavement surface. (3) Traffic breaks up ice which can quickly and easily be scraped aside, plowed away or removed to make the pavement completely bare and really safe.



Do you mention THE AMERICAN CITY? Please do.

# Sludge Drying and a Safety Code

## *Sludge Drying Speeded by Application of Alum*

THE PECULIAR WEATHER CONDITIONS which prevailed in 1939 in Aurora, Ill., tended in a number of ways to create operating problems at the sewage-treatment plant. The low rainfall of uniform distribution resulted in a concentrated sewage which produced more efficient removal in the clarifiers. This, in turn, produced a sludge delivered to the digesters having higher volatile matter which reduced the specific gravity so that the sludge tended to "bulk" more in the digesters and thus reduced the storage period. These shortened storage periods became critical in the fall of the year when drying conditions were not so good. This led Walter A. Sperry, Superintendent, Aurora Sanitary District, to try the effect of alum to hasten the dewatering of the sludge, as had been used successfully at Toronto, Ont., and other places.

An experimental tryout was made in September, 1939, on one sludge bed. The results were so encouraging that the digester discharges made in November and December were given a full alum treatment of 400 pounds per bed, or at the rate of 1 pound per 85 gallons of sludge, which is equal to 1.4 grains per liter. The problem of applying the alum proved to be a simple and easy task. Two hundred pounds of alum will readily dissolve in 50 gallons of water, so that by rigging up three or four barrels equipped with a small-size pitcher pump, funnel and hose, the alum solution was readily applied to the discharging sludge at the point of entrance to the beds, and the rate controlled against the rate of filling of the bed.

The results of this method to date indicate that the drying time under summer conditions can be reduced to as short a period as twelve to fifteen days. In winter its advantage is equally effective, since the bed is practically dewatered within a 24-hour period. Under these conditions the bed must be frozen to be removed, and the cost is cut in half, since alum-treated beds produce a sludge cake of about 4 inches, whereas untreated beds produce a cake of almost 8 inches.

It was further demonstrated that whereas untreated beds are greatly retarded if caught in rain before "cracking," alum-treated beds under rain conditions tend to let the water through immediately and with much less retarding of the drying operation. The use of alum at the close of 1939 appeared so favorable that it was stocked in carload lots at approximately one-fourth saving over retail trucking from the Chicago area. Carload purchase reduced the cost per discharge to ten sludge beds requiring two tons of alum, from $63.50 to $48.00. Undoubtedly, the use of alum in 1939 was a unique and valuable experience, as it saved the plant from almost a disastrous period of operation in which the digesters would have become full and the sludge beds also would have been full and in an unfit condition for the removal of the sludge.

**Attend Your Local State and Regional Sewage-Works Conferences**

## *Sewage Associations Announce Safety Code*

THE SAFETY CODE prepared jointly by committees of the New England Sewage Works Association and the New York State Sewage Works Association, is produced below. Copies of this code were made available to members of the two associations on heavy paper and also on cardboard for posting at sewage works.

This Safety Code is a start in the right direction, but it does bring up a few questions relating to practices that should not be permitted at any time. Item 7 would make it appear that it is permissible to have a temporary connection between a domestic water supply and a sewage-sludge pipe or tank. No such cross-connection should ever be permitted, even though temporary.

While sewage works operators should insist on washing and sanitary facilities as mentioned in Item 8, there is some question as to what a plant operator can do if municipal officials care so little about such common decencies as to approve plans for a plant which omits them.

While it is realized that the committees did not wish to expand this Safety Code to too great length, one might ask why there is no reference to particular care in handling sewage gas? We suggest the inclusion of at least one further item:

"Operate artificial gas or sewage gas burners with extreme care in improperly ventilated boiler rooms. Maintain a constant positive pressure within gas collection, transmission and utilization systems, *at all times.*"

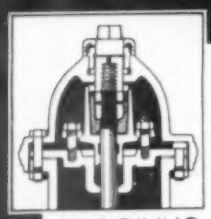
We further call attention to the ten well-chosen general rules for the maintenance of gas collection and utilization equipment at sewage-treatment plants published in the February, 1940, issue of THE AMERICAN CITY on page 11. These rules originally appeared in *The Digester*, of the Illinois Department of Health. We suggest that these rules be posted alongside the Sewage Works Associations' Safety Code reproduced below.

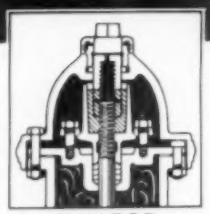
### SAFETY CODE
## Alert Today — Alive Tomorrow

1. The ABC of safety: Always Be Careful. Do not use intoxicants.
2. Do not light a match or smoke in sewers or sewage enclosures. Use only non-sparking explosion proof safety electric lights.
3. Use a safety belt when entering deep or large sewers or sewage filled pits and have one or preferably two men stand by.
4. Thoroughly ventilate sewers and sewer enclosures before entering. Use a non-sparking, portable blower when necessary. Wear a gas hose mask or self-contained oxygen breathing apparatus if in doubt. Learn in advance how to use such masks.
5. Guard against live wires, slippery surfaces, open manholes, manhole covers, moving machinery.
6. Keep walks free from oil and grease and cover icy walks with sand.
7. Do not permit temporary water flushing pipes or hose to remain connected with sewage or sludge pipes or tanks after use.
8. Insist on: (1) washing and sanitary facilities, (2) protection against hazards, (3) gas masks and other safety equipment.
9. Clean, and use antiseptic on every skin abrasion and wash hands thoroughly, using soap, before handling food.
10. Handle chlorine cylinders with care and don't drop. Follow tag instructions, don't tamper with valve or apply flame, steam, or hot water. Don't place cylinders near steam pipes or radiators. Open valve slowly and leave special wrench in place. Close valve when cylinder is empty. Keep chlorine gas masks ready and accessible, and know how to use them in emergency.

Post at Telephone the Emergency Numbers of the Fire Department, Hospital, Nearest Doctor, etc.

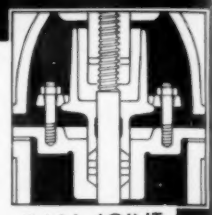
New England Sewage Works Association — New York State Sewage Works Association


SELF-OILING TOP


DRY TOP CONSTRUCTION

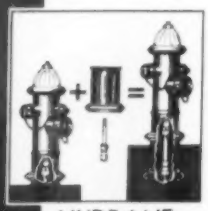
ALL WEATHER CAP

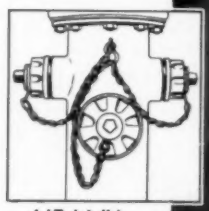
NON-FREEZING OIL


BALL JOINT CONSTRUCTION

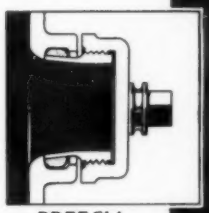
# 16 Reasons

## FOR INSTALLING MUELLER-COLUMBIAN FIRE HYDRANTS

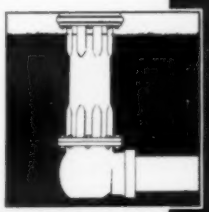

HYDRANT EASILY EXTENDED


HEAVY, EXTRA-LENGTH CHAINS

CHANGE OF NOZZLE DIRECTION


BREECH LOCKED NOZZLES

REPLACEABLE SAFETY-FLANGE


SCIENTIFICALLY TAPERED BARREL

Check the many outstanding features of the MUELLER-COLUMBIAN Fire Hydrant and then decide for yourself whether or not any hydrant with less could possibly fill the bill. Start at the top and go step by step right on down to the bottom. Every part—every feature has a definite bearing on smooth, dependable operation and lower maintenance costs. Just a glance will show that the MUELLER-COLUMBIAN with its advanced engineered features will mean substantial savings throughout its long and useful life.

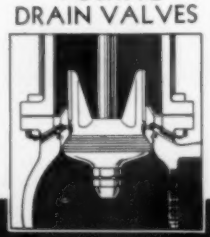
Ask any Mueller representative to explain all the details.

## MUELLER CO.

CHATTANOOGA, TENN.

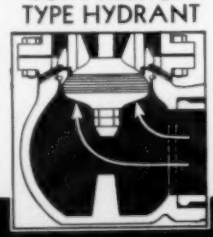
BRONZE-BUSHED SHOE

POSITIVE DRAIN VALVES



WATER-TIGHT GASKET

COMPRESSION TYPE HYDRANT



CHROME TANNED LEATHER VALVE

Vol. LV, No. 11 The American City November, 1940

# Training for Efficiency in City Management

*A Discussion of Various Lines of Experience and Their Value to a City Manager, with Particular Reference to Municipal Engineering Experience*

By Chester F. Lewis
City Manager, Morganton, N. C.

WHAT type of previous training is of greatest value to a city manager?

Such a question will bring forth varying answers from different persons and under different conditions, so that a single simple answer cannot be given. Careful consideration should be given to the question, because finding the correct answer will contribute much to the quality of municipal administration in the future.

The rapid development of the city manager form of municipal administration from its beginning in 1908 to a present total of over 500 cities and towns enjoying its benefits, and the rapidly mounting interest throughout the nation in its adoption by other municipalities, make it of prime importance that there be determined the proper and best qualifications which a city manager should possess, not so much for the personal success of the manager himself, but for the success of the manager plan. Where it is permitted to function without political interference or control, the manager plan is bringing to the citizens of cities and towns the benefits of business efficiency, resulting in more and better public services at less cost to the taxpayers.

It is extremely important to the perpetuation of our democratic institutions and ideals that we have intelligent and active citizen interest and participation in local governmental processes, including administration. The city manager, being the responsible administrative officer, can contribute much or little to successful local government, according to his honesty, ability, and his freedom of action.

## Delegation of Authority to Department Heads

The qualifications essential to successful city management will vary with the size of the city and therefore with the extent to which it is organized. The larger the city, the larger and more numerous are its activities; therefore the delegation of authority by the manager to department heads and subordinates becomes increasingly necessary for proper supervision and control. The department heads become specialists in certain activities, and the city manager finds it necessary to look to them for advice and recommendations in matters pertaining to their particular departments.

In the larger cities the primary qualification of the manager would seem to be that of a successful administrator in whom specialization in any single field of activity, such as engineering, law, finance, or general business, would be of secondary importance. The manager must rely on his department heads for the successful functioning of the various departments, so he should be able to select competent persons to fill these important positions. Having selected them, he must be able to instill in them a feeling of loyalty and willing cooperation, which they in turn will transmit to all city employees under them, creating throughout the organization a spirit of public service which will be reflected in efficiency and good public relations.

The securing of a smoothly functioning operative organization is a primary objective of any city manager, regardless of what his former field of specialization may have been. In the administrative direction of activities the manager will be most likely to interest himself more particularly along the line of work in which he has previously been engaged. A lawyer will probably be most interested in legal matters, a financier in financial matters, an engineer in engineering and related matters.

## Applicability of Previous Specialized Experience

At this point there will arise divergent views as to the relative importance of various forms of specialized training and experience in carrying on the work of a city manager. A lawyer will see the value to a manager of legal training and experience, because of the many points at which law touches the manifold activities of the modern city. However, municipal law is a specialized field of law, and experience can be gained only by being a part of a city organization. Legal practice outside the city organization will not provide the necessary experience.

Important though a knowledge of law may be, and valuable though it might be to a city manager, it cannot be as useful to him as other training might be. Legal problems are subject to judicial determination, the personal judgment of the manager having little or no effect on the result. Legal action and procedure follow prescribed paths which the manager cannot change. Except for the intellectual ability

which a knowledge of law requires and the mental keenness which its successful practice develops, a lawyer would not appear, generally, to have the type of specialized training most useful to a manager.

A financier, observing the large amount of public money collected and spent, would consider that here is a fertile field for the utilization of financial ability. In fact, there are important opportunities for the application of such ability in the marketing of securities, the investment of sinking-funds, the management of credit unions and retirement funds, and in other ways. However, with the exception of the investment of idle public money, most of the financial operations of a city follow a definite routine, and the principal requirement is to secure accurate accounting for all money received and disbursed. This work will be performed by staff heads, leaving only a limited field in which the financial expert can utilize his specialized knowledge.

A business man experienced in any one of a multitude of private enterprises would find municipal business to be quite different from private business. While it is true that there exists the same need for efficiency, economy, and all the other attributes of a well-conducted business, the public nature of municipal business involves restrictions and limitations to which private enterprise is not subject, making it difficult to attain the good results desired.

There is no field of private enterprise which resembles to any appreciable extent municipal government and administration; therefore, participation in such private enterprise is not preparatory to municipal management except in a very general way and to varying extent.

Some of the essential qualifications of a manager are adequate education, balanced judgment, administrative capacity, ability to maintain proper public relations, honesty, and, in particular, the ability to understand as comprehensively as possible the manifold activities of the modern city.

A study of the modern city will disclose the following staff and functional activities usually subordinate to the city manager: legal; treasury; personnel; purchasing; welfare; health; fire; police; public markets; engineering highway maintenance and construction; waste collection and disposal; property maintenance; records and cost accounting; utility supervision; traffic regulation; operation and maintenance of water supply, purification, and distribution; and sewage collection and disposal. In addition, the city manager serves on, or has frequent contact with, special boards and commissions, such as a City Planning Commission and a Recreation Commission.

## Importance of Municipal Engineering Training and Experience

Examining these activities, it will be found that in more than half of them municipal engineering training and experience can be utilized. For example, purchasing involves the preparation of specifications for materials and equipment entering the construction and maintenance of streets, bridges, water and sewerage systems. Engineering involves specifications and plans for the construction of various types of structures. Highways, water and sewerage systems, traffic regulation, development of parks and playgrounds, city planning, cost accounting, refuse collection and disposal, all involve in various ways and to varying degrees the application of engineering experience. The manager will be constantly called upon to render decisions in connection with these activities.

It is clearly apparent that municipal engineering knowledge and experience are capable of application to more municipal activities than any other single kind of professional or business training. Also, training and practice in engineering is generally recognized as of great value in many other fields of activity, because it develops in the engineer the habit of seeking first all the facts, appraising them, and reaching an unbiased decision only after proper deliberation.

Engineering training, with experience in municipal engineering, therefore provides a general familiarity with, and ability to understand, the details of more municipal activities than any other training, and develops an attitude of appraisal and reserved judgment of value in considering problems non-technical in character.

One of the important responsibilities of the manager is the preparation and submission of the budget covering every activity of the city government. Department heads, in the preparation of departmental requests for money with which to carry on their activities for the fiscal year, generally find themselves desiring more money than will be available to them when the total of all requests is considered. It then becomes the responsibility of the manager to decide which activities are of most importance and most deserving of funds with which to carry on, and which activities can be curtailed or omitted. The ability to judge these requests is based on a thorough practical understanding of the requirements of every city activity, the majority of which involve engineering principles and practices, again emphasizing the value to the manager of engineering training.

It should be emphasized that a successful engineer would not necessarily be a successful city manager any more than a specialist in any other field could become a success as a manager unless he possessed, or could readily acquire, an understanding of municipal government and administration. The other important qualifications previously mentioned should be possessed in whole or in part. Only a manager with engineering training can fully appreciate the many ways in which his training will assist him in filling his position as manager. Other business or professional training will be of value to him, but it is believed that there is no other training of value equal to engineering training in the city manager field.

**To Over-Modest Municipal Officials**

**Why hide your light under a bushel? If your municipality has a recent "forward step" to its credit that has not already been reported in The American City, why not submit an item on this subject for possible publication? Please address your material to:**

**Editorial Department,**
**The American City,**
**470 Fourth Avenue, New York**

# Hog Island Now an Airport

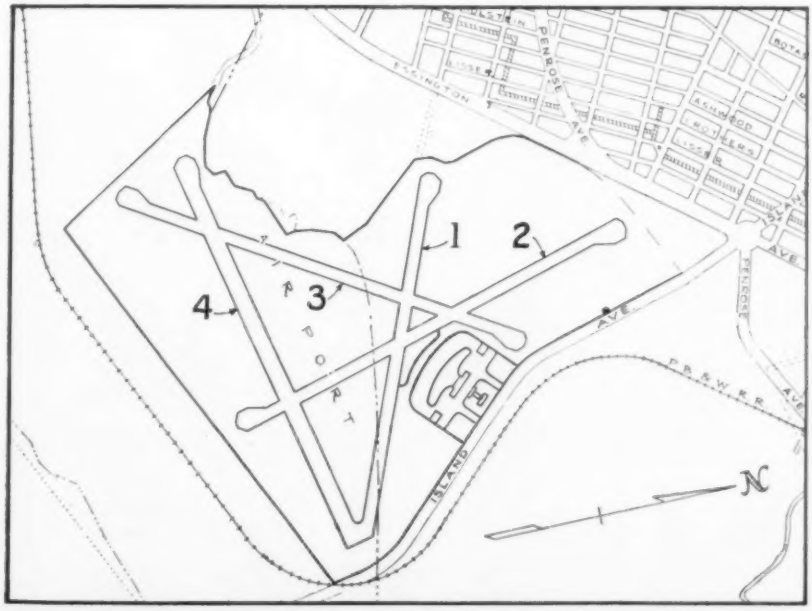
## *World-War Ship-Building Center Near Philadelphia Becomes New 494-Acre Airport with Modern Facilities*

By C. C. Herman

HOG ISLAND, noted during the World War as an important ship-building center, has passed from view with the demolition of the last building by the Department of Public Works of Philadelphia, Pa., to make additional space for the Philadelphia Airport. The airport project was started in 1928 by a privately conducted survey aimed to determine a suitable site. In 1930, the city of Philadelphia purchased the Hog Island property from the U. S. Shipping Board for use as an air, rail and marine terminal. Permission was granted to the U. S. Engineer Department to use the Hog Island tract as a place of deposit for hydraulic fill derived from dredging operations in the Delaware River to an amount sufficient to raise the average height of the whole property 10 feet. The undertaking involved nearly 3,000,000 yards of fill.

Exhaustive surveys of the area were made by the city of Philadelphia, and it was found to possess features making it exceptionally desirable as an air terminal. The area is at the junction of the Schuykill River and the Delaware River, making the port easy to locate from the air. It is adjacent to a large metropolitan area on both sides of the Delaware heretofore not served by adequate air facilities. The immediate area is one comparatively free of dense fogs and other unfavorable atmospheric conditions prevalent along the Atlantic seashore.

The area included in the air field is 494 acres, sufficient to accommodate four runways, each over one mile in length. The south line of the airport parallels the shore of the Delaware River at Hog Island. The airport is easily reached from downtown Philadelphia by a 12-minute ride south on Broad Street to Penrose Avenue and Island Avenue direct to the main entrance. Island Avenue is now paved with two strips of concrete, is 108 feet wide, and has a parking strip in the center. Runways 2, 3 and 4 are 150 feet in width, and the instrument-control runway, No. 1, is 200 feet in width. The radio beam for this runway is located in Delaware County in line with the runway, the normal approach of the landing plane being from the west. All runways are hard-surfaced bituminous concrete with a white cement gutter along each edge of each runway. The gutters drain into storm-water drains paralleling each runway. Since the gutter is white, it is easily visible from above during the day, and at night these edges are illuminated by lights of a color scheme designed to indicate the distance from the lights to the end of the runway. When illuminated at night, the pattern of the runways is readily seen from the plane above, presenting a symmetry which cannot be mistaken. The field is further designated by regulation lights for night observation and protected by a chain link wire fence over 5 miles in length.




*Plan of the New Hog Island Airport*

### Buildings

Buildings at the port include the administration building and the restaurant and service building. Ample parking space is provided on either side of the 55-foot beacon tower, which is located directly in front of the administration building. Within the administration building, which is 55 feet wide and 170 feet long, are the ticket offices of the various airlines using the port, a post office, the waiting room, the administration offices, an express office, and the office of the Civil Aeronautics Authority.

The restaurant is at one side of the administration building in a separate structure, and on the other side is the fire station, ambulance and public rest room building, measuring 55 x 61 feet base dimensions. The radio transmitter building is about 1¼ miles distance from the field, in order to reduce as much as possible interference with the receiving apparatus at the field proper.

A passenger, in order to reach his plane, must pass through the center

of the main building to an outside paved area 150 feet wide and 580 feet long. Only passengers are allowed in this area, spectators being held back by a chain link fence. There are eight loading gates leading from the passenger area to the planes.

The barrier between the administration building and the field is constructed with an 8-inch reinforced concrete base 18 inches high, on top of which is a 30-inch iron picket fence. The gateways are wrought iron.

### Service

The airport is an outstanding development, and although conceived more than ten years ago, the fact that service was inaugurated June 15, 1940, makes it one of the important events of this year. From now on, all main routes of the United Air Lines, American Airways Company, Eastern Air Lines, Inc., and Transcontinental & Western Air, Inc., will make regular stops at this airport, providing a service for Metropolitan Philadelphia not formerly available. The proximity of the U. S. Navy Yard, the proposed tunnel beneath the Delaware River, and the Philadelphia connection with the Pittsburgh and Harrisburg super-highway, make the airport location of added national importance.

## As a Housing Authority Sees Its Job

*FROM the report of the Housing Authority of the city of Hartford, Conn., for its first two years, June, 1938, to June, 1940:*

From the first the Authority recognized that it was a new agency in the field of municipal government, that it was in fact the first body ever to be established in Hartford with the funds, powers and responsibility to eliminate slum conditions and construct homes for low-income families.

The Authority . . . does not look solely to its own program for the eradication of slums and of blight and for a solution of the problem of providing decent homes at rents which the largest group of local wage-earners can pay. Rather does it believe that public and private housing agents must act together, each attacking the problems within the range of its functions, until that time when it can be honestly stated that housing has been improved to the point where a considerable percentage of it no longer impairs the public welfare nor unnecessarily drains the public treasuries through its demands made upon police, fire, health and welfare services.

Present plans of the Hartford Housing Authority are for the erection of four projects accommodating about a thousand families. Already three projects are "in the works." . . . From squalid, unhealthy surroundings the Negro and the white man should be able to move into some of these newly constructed homes by the end of this year, and before the end of 1941 over 700 eligible families should be moving into a more promising environment.

They will find that properly planned housing can yield play space, green lawns, shrubbery, trees and back yards for gardening. They will note the advantages of possessing one's own toilet and bathtub and a fully equipped kitchen providing adequate cooking, storage and refrigeration facilities. They may have a feeling of being given a new lease on life, but they probably will not note, as health and welfare authorities will, that their mental and physical health and morale have improved immeasurably and that from this point on, the chances of their becoming a public burden are far less than when they were in their old quarters.

## Industrial Cooperation Brings Defense Orders

A UNIQUE plan for handling defense orders, developed by the industrial city of York, Pa., is the subject of an article in the September 28 issue of *Business Week*.

York lets each company land its own orders. But, once the contract is landed, the Government is offered fully mobilized production. This is attained by swapping information on idle equipment and available labor, parceling orders among plants in the community, keeping complete information on tap in a single location. By this means, York achieves maximum production without needless investments in new machine tools, importing workers or interfering with requirements of regular commercial customers.

Here is how the plan works: Company A gets an order for a heavy piece of naval equipment which it would have to turn down because of inadequate boring-mill capacity if it stood by itself. But the production manager goes to the committee files, discovers that Company B has some free time for its boring mills. Plant B agrees to help out. It schedules its work for the next six months so that its own boring-mill operations are held to certain hours, and definite other hours made available for Company A.

Workmen are not shifted from the plants they are familiar with nor are machines moved. The work is cut up so that parts of the contracts can be handled by the secondary plants. Pressure hasn't reached the point where the metal trade companies have to call on other industries. If this second-line production is mustered in, it will mean that the regular men in these shops will work there on simple parts capable of being turned out by their equipment.

The York plan has numerous advantages. It enables a company to keep in town orders that would have gone elsewhere for lack of capacity in the bidder's plant. This evens off the bulge of orders in certain mills, passes around the surplus, stabilizes employment and retail activity. By working machines in multiple shifts, overtime and extra cost to the Government is avoided. Moreover, this full utilization of existing plant equipment removes the necessity for loading the hard-pressed machine-tool industry with orders that it can't immediately fill.

In several cases large orders have been held in York because secondary companies have taken over part of the production. Defense officials can be told, within a few minutes after reference to committee files, whether York can or cannot perform certain tasks. Performance of the plan can be gaged by the fact that while the community has upwards of $20,000,000 in defense orders, plant expansion has not been necessary, regular commercial orders are receiving full attention, and capacity is not yet saturated.

In other towns the York plan might not work so well, the *Business Week* article points out. York has been lucky, or maybe intelligent, in escaping the ailments common to high-speed-concentrated industry. This city of 66,000 has no single, overbearing plant nor any single dominant industry to lift it or let it down. York County has 248 plants which manufacture 264 lines. The York Chamber of Commerce claims the city has the largest plants in ice-making and refrigerating machinery, bank safes and vaults, water turbines, wall paper, roofing paper, pretzels, auto-tire chains, bakers' machinery, and 64 per cent of the world's artificial teeth.

This diversity cuts down competition, encourages cooperation for community benefits. Moreover, ownership of industries is largely held in York itself, making for fast decisions and flexibility of management.

# Oyster Shells as Aggregate for Concrete Streets

## *Sea-Bottom Reefs Supply Material for Unique Paving in Louisiana Town*

*By* L. E. Martin, Jr.

*Piled Tons of Shell Screenings, Formerly a Waste Material, Now a Fine Aggregate for Morgan City Concrete Streets*

FROM dead oyster reefs in the Gulf of Mexico has come material to make attractive, durable streets in Morgan City, La., where a paving project utilizing shell to completely replace sand and gravel aggregate has reduced construction costs and produced an apparently superior type of street pavement. Much attention is being paid to this project by construction engineers of the South, with many favorable and enthusiastic comments.

The new paving in Morgan City is costing $325,000 for a total of 19,390 cubic yards of concrete laid 7 inches thick on the city streets. This is believed to be the first real test of coarse and fine oyster shell to completely replace other aggregates in concrete, and is being completed this fall.

The project was begun in 1935, but the first use of shell in street work in Morgan City occurred fifteen or twenty years ago when some shell concrete culverts were poured. Workers on the present job have dug up some of these culverts and found them all in excellent condition. Joseph Evans, City Engineer, over ten years ago used shell to construct the shoulders for an asphalt highway through the city. These shoulders are still in good condition. Since sand and gravel have to be brought a considerable distance, which greatly increases the costs, and since oyster shell had proved good in concrete culverts and for shoulders along highways, Mr. Evans decided to try shell for the city streets. Oyster Shell Products Co., which dredges shell from dead oyster reefs in the Gulf, about 40 miles from Morgan City, operates the largest shell-crushing plant in the world, to produce poultry feed and other lime products right on the edge of the city. After crushing the shell, the plant casts off a waste material which is very finely ground and resembles white sand even on close inspection. The company itself tried shell paving and put down a slab on its driveway. This, without base preparation or thickened edges, was put down ten years ago, and, with traffic

*The Finished Product—One of the Shell Concrete Streets Four Years Old and with No Contraction Cracks*

passing over it almost continuously, it is still in use and in good condition.

The producer cooperated with the city, furnishing coarse shell for large aggregate and fine shell screenings for sand. The cost is one-third less than that of sand and gravel delivered in the city. Leonard Noes, Assistant City Engineer, reports:

"For looks and durability in the uses to which we have put shell concrete, it can't be beat, and we find that on over-all jobs of the same or lesser age than ours, but using sand and gravel, there are none to compare in the small amount of expansion cracks. To the best of my knowledge, not a single expansion crack has been found in any of our shell paving. We believe that this is the only project of any large size in the country using dead reef shell exclusively for aggregate, for, while Houston, Texas, and several places in Florida have used or are using shell in some ways, we are informed that they are using gravel large aggregate and a different type of shell, or sand and shell."

Unfortunately, not many tests have been made of the new paving, and laboratory data are lacking. No cores have been taken, though some are to be made soon.

### Laying the Pavement

The base course of the pavement is laid with 5½ inches of concrete made of cement, fine shell screening and raw washed uncrushed coarse shell, and upon this is poured ½-inch of concrete made with cement and the fine screened shell. The formula for the base course is 1 part cement to 2½ parts of fine aggregate and 3½ parts coarse aggregate. The formula for the top, or wearing surface, is 1 part cement to 2 parts fine aggregate.

The city is also using approximately the same formula for its sidewalks, another WPA project. Substantial savings have been effected in the sidewalks, which have been laid at an over-all cost of 15½ cents per square foot, of which 8½ cents is for materials. This compares favorably with contract work of the same kind, laid previously, at a cost of 20 to 25 cents per square foot.

While it is not expected that many other cities will be able to use the shell aggregate as extensively as Morgan City, where a combination of favorable circumstances makes it economically worth while, the results of coring and other tests on the shell concrete, as well as its use in heavy-duty highways, are awaited with interest in geographical areas where this type of aggregate is available at low cost.

# Effect of Low-Cost Housing on Municipal Finances

TO THE Editor of THE AMERICAN CITY:

I have read with great interest the symposium in your August number relating to the effect upon the finances of New England towns of the current crop of small, low-cost house developments. The article was of especial interest to me as I had prepared and read a paper on the same subject at the Cape Cod meeting of the Massachusetts Federation of Planning Boards last June.

To my mind the most important consideration in the whole problem is a realization that this sudden and wholesale reversion to home ownership among families of moderate means constitutes one of the most heartening signs of the restoration of American ideals and of the American way of life that have appeared in many years. There are of course dangers—the danger of the purchaser being cheated by a "gyp" builder, the danger of his assuming a long-term financial burden greater than he can bear, and the danger of his losing what he has put into the property if for any reason the location of his place of employment is changed. If in any case these dangers are not present, the purchase by a wage-earner of a small single house in the country with adequate land around it, is something to be welcomed by socially minded people, not discouraged.

A factor that must, however, be considered is the effect of the new resident upon the town treasury. While it is doubtless true that a family with two or more children in the public schools and owning a $4,000 house does not pay in taxes what the children cost the town in school expenses, to say nothing of the additional expense of fire and police protection and other municipal functions, the same conclusion has been often reached in relation to residential districts generally. There are so many imponderables involved that I have come to question statistics so often put forth indicating with what purports to be mathematical accuracy the failure of a particular section of a town to carry itself financially.

However, it is easily demonstrable that a town composed entirely of the small low-cost homes of the type recently made familiar, and occupied by families with an average of two children in the public schools, would require a tax rate so much greater than anything now known that the inhabitants could not reasonably be expected to pay it.

The solution to the problem, to my mind, is adequate zoning. To make it possible to educate the children living in the small homes and to provide a decent community for the young parents to dwell in, the town should be properly balanced; the well-designed small house development should be welcomed, but there must be some sections made attractive for the families who can be counted on to pull more than their own weight. Parts of every town ought to be zoned with minimum lot sizes suitable for substantial homes, and the depreciating effect of the entry of a brood of small houses into a high-grade residential district avoided; and little business centers with relatively high land values, and perhaps a factory or two in one corner of the town, should be permitted.

The problem described in the symposium in your August number is doubtless a real one; but the answer is not to enact restrictive legislation that will confine the families in the income group just above the slum-clearance and public housing project class to the cramped surroundings of the great cities. The real answer is to adopt intelligent zoning legislation that will provide adequate space for the small low-cost homes and at the same time protect values in other portions of the town so that there will be no impairment of the tax base. America is big enough to provide space for every wage-earner able and willing to buy himself a home, however modest it may be.

PHILIP NICHOLS,
Chairman, Executive Board,
Massachusetts Federation of Planning Boards.
Boston, Mass.,
October 10, 1940.

*Olbrich Park (left) was developed by the filling-in of marshland along Lake Monona, Madison, Wis. Part of the spring-fed lagoon made by the CCC unit on the 27-acre tract of the Arboretum is shown at right*

# Option Method Secures Land; Reclaimed Marshes Provide Parks, in Madison

*From information furnished to Margaret Nordlie by*

JAMES R. LAW
Mayor of Madison;
President, Wisconsin League of Municipalities

HAROLD E. HANSON
City Attorney,
Madison

JOSEPH W. JACKSON
Executive Director,
The Madison and Wisconsin Foundation

JAMES G. MARSHALL
Secretary, Madison Board of Park Commissioners

PAUL E. STARK
Former President, National Association of Real Estate Boards

THE city of Madison, Wis., with a population of approximately 67,000, has unusually successful methods of acquiring and reclaiming land for public purposes. Because it is the capital of the state and contains the state university, and because it is located in a lake region, it has made special effort to secure a large amount of publicly owned land.

## Deferred Payment Option

One method of acquiring land is by the deferred payment option plan. The option agreements are usually for a ten-year period, during which the land is not taxable. The purchase price is paid in annual installments or in full when the option expires. James R. Law, Mayor of Madison, and President of the Wisconsin League of Municipalities, says of the option method: "It is particularly advantageous now when WPA and other relief organizations can be used to develop the land, so that when the purchase is complete, the property is worth much more than it was at the time the agreement was made."

One case of the option plan operating in Madison is the acquiring of the Neckerman property on Monona Avenue as a site for a proposed city hall facing the civic center. A tenure option was drawn up with the following provisions: that any taxes levied against the property for ten years be assumed by the city; that the city have the right to use the building now on the property for city offices, rent free; and that Neckerman be allowed to build a filling station and operate a parking lot on part of the premises until the city takes possession. For purposes of option, the filling station was valued at $10,000 with a decrease of $1,000 each year. If the city does not exercise its option until the end of the ten-year period, there will be no evaluation on the filling station.

Another case was the acquiring of Conklin Park on Lake Wingra. The Conklin property was the ten-acre site of an ice house, and had a strip of land leading to it through private property intended for a railroad right-of-way. This strip, too narrow to be used as a playground, was utilized for sewer and water mains. It was agreed in the option that if the city could sell parts of the right-of-way to private owners of land on either side of it, the city would use the money thus received as part of the payment on the park. Thus far, ten parcels of land have been sold, and one parcel is being used as the site of a fire station.

The option method was used successfully in acquiring the University of Wisconsin Arboretum, Wild Life Refuge, and Forest Experimental Preserve, a tract of more than 900 acres located near the city of Madison bordering Lake Wingra. The method used there was as follows: The owners of the land transferred the property to the University by a regular form of warranty deed. This deed, however, contained what is called a reversion clause, which stipulated that if the University did not pay to the owners the agreed-upon purchase price plus

accumulated agreed-upon interest on or before the end of ten years after the date of the deed, the title to the property would revert to the owners.

Under this procedure the property was immediately removed from the tax roll after the transfer that relieved the owner from payment of taxes thereon was recorded. The University was not legally bound to pay a dollar either of interest or of principal; consequently, it was not a regular type of land contract which definitely obligated the University.

During the period of ten years the University is making considerable improvement on the property through the means of various types of public agencies. Consequently, by the end of the ten-year period, owing to the program of development, the value of the land will be greatly increased, in some instances doubled, trebled, or quadrupled over the original price. This fact serves as an added inducement to secure the funds with which to make the payment prior to the end of the ten-year period. In the meantime, effort is being put forth by University officials to secure the funds by gift or from other sources.

Part of the Arboretum property was acquired by the deferred-payment option plan, part by outright purchase at foreclosures and tax auction sale, and part by gifts of land or of money to buy land.

An example of the last-named method was the gift to the University made in 1937 by an anonymous donor of $20,000 with which to buy approximately 27 acres of land lying between Monroe Street and Lake Wingra. The National Park CCC unit, which had been established at the Arboretum in 1935, developed the property in 1937, 1938, and 1939. They made a spring-fed lagoon approximately 1,400 feet in length with three islands and two rock dams. They planted arbor vitae plantations, gifts of civic-minded citizens; prepared a parking space; and built a 2,200-foot drive along the north border. This work represented an expenditure by the National Park Service of about $80,000, thereby making the original $20,000 gift an eventual one of $100,000.

## Owner's Financial Protection

It must, of course, be kept clearly in mind that the option method of acquiring privately owned property for public use can be followed advantageously only where such transfers from private to public ownership will automatically relieve the private owners from the necessity of paying the annual real estate tax thereon. Under the specific terms of options, various kinds of arrangements can be made between the municipality and the private owner by which the owner will in one manner or another be relieved of the real estate tax or else receive the equivalent of it, as has been done in the case of the Neckerman property described, which the city of Madison desires as the site of its future city hall.

These properties were not what could be termed productive of income to the owner except in small measure, insufficient to meet the annual real estate tax. In each case there was a desire on the part of the owner to dispose of them to the city or to the University at what both parties to the transaction considered was a reasonable price.

While the owners have no definite positive guarantee that they will receive the principal and interest agreed upon, nevertheless there is a reasonable belief that they will be paid in full and before the expiration of the ten-year period. Their best assurance is that, because of the general increase in the value of such land over a period of ten years, and particularly because of the development of the property by various public agencies, the ultimate value at the end of the ten-year period will be much greater than stipulated in the original purchase price.

If by any chance or circumstance the title to the property should revert to the original owners, or if the option thereon were not exercised, the original owners would receive back properties which had been greatly increased in value. In the meantime they would have been relieved of the annual tax burden.

Of the approximately 566 acres of park land belonging to the city of Madison, about 170 were reclaimed by the filling-in of marsh lands or by the dredging of lakes and rivers. The reclaimed sections include about 44 acres of Tenney Park on Lake Mendota, 27 acres of Brittingham Park on Lake Monona, 30 acres of Henry Vilas Park on Lake Wingra, 27 acres of Yahara Parkway along the Yahara River, 20 acres of Olbrich Park on Lake Monona, and 20 acres of Franklin Field.

Olbrich Park may be taken as an example of the acquiring and reclaiming of park land in Madison. The park site, consisting of 66 acres of marsh land along Lake Monona, was acquired by the city in 1921 and 1925, but very little development work was done until 1932. At that time the problem of unemployment resulted in the sponsoring of a city work relief program, and the filling of the marsh was begun. Since then, various organizations such as the CWA, FERA, WPA, and city and county relief groups, have continued the work of developing the park.

The marsh along the lake shore was filled in and seeded. At some distance back from the lake, across a highway which divides the park, a rubbish dump had been located. There, dirt scraped out of the marshes was hauled up to cover the accumulation of rubbish and to make a level fertile top-soil there. The holes left by the removal of the dirt were filled in with more rubbish. This process of removing dirt to cover the rubbish, and filling-in the holes with rubbish is a continuous one. Grass and flowers were planted on the leveled area, and trees and shrubs along the road to screen off the undeveloped land.

Part of the property which is now Olbrich Park was a gift from Michael B. Olbrich, a civic-minded citizen; and part was purchased from the Madison Parks Foundation, a non-profit organization created to purchase desirable land and hold it in trust until the city chose to buy it. Mr. Olbrich was Chairman.

Many of the Madison parks were acquired and developed by the Madison Park and Pleasure Drive Association. This association was dissolved about five years ago. Its property was turned over to the city, which now administers it under the Madison Board of Park Commissioners.

# Dedication in Boston of a Bronze Statue and Tablets in Paul Revere Mall

*By* Everett B. Mero
Secretary, Citizens' Public Celebrations Association of Boston

ADDED to the varied facilities of the Boston Park Department is an artistically interesting feature possessing historic value that exceeds local boundaries and has national sentimental and patriotic merit.

In the Paul Revere Mall, in the North End of Boston, has been erected an equestrian statue of that widely esteemed "messenger of the Revolution," Paul Revere, which with its pedestal of polished granite stands 21 feet high. And along the sides of the Mall, set into the brick walls, are thirteen bronze tablets, 4 to 6 feet high, on which are inscribed names and brief accounts of achievements of colonial worthies who lived in that area, dating from the founding of Boston in 1630, when Governor John Winthrop and his Puritan associates arrived with a new government, and a settled policy that included liberty for New England.

## Dedication Culminates Many Years of Effort

On Sunday afternoon, September 22, the formal dedication of the statue and the tablets took place,

witnessed by 8,000 persons and participated in by a representative cross-section of officialdom and the citizenry of city and state, including descendants of those who were being specially honored; also a goodly number of men and women from other parts of the United States, in Boston for the American Legion annual convention.

The statue had been 56 years delayed; it took only 6 years for the plans for the tablets to be realized. Back in 1882 a movement for a statue to Revere was started by a joint committee comprising the Mayor of the city, representatives of the Massachusetts Grand Lodge of Masons, the Charitable Mechanics Association, the Revere family, the Military, and citizens at large. In 1884 two competitions were conducted in which sculptors of the nation participated. The winner was a young student from Utah, lately come to Boston, Cyrus E. Dallin. The idea of "an upstart" carrying away honors of such importance raised a professional and social stir. Objections were powerful enough to hold up progress. The matter was revived from time to time during the years, but not until a couple of years ago, and then mainly by Dallin's personal efforts, did results come so that the statue could be financed, the artistic details and the casting arranged, and the installation completed.

The act of unveiling was by a Paul Revere of today, a great-great-great grandson of the man of 1775. Mr. Dallin was acclaimed earnestly; "a great wrong righted," said Mayor Maurice J. Tobin in formal acceptance.

The tablets had less prominence than the statue, owing to the glamor surrounding Revere, but this part of the development is not

*Thirteen bronze tablets, set into the brick wall on three sides of Paul Revere Mall, commemorate the achievements of colonial men and women of the locality*

less apparent. Were it not for the men and women the tablets honor, of the days of Revere, he would have been only an expert craftsman not much known outside his immediate local circle. A resident of the North End, Robert S. Chase, conceived the idea of the tablets, and his individual persistency brought the results.

The Paul Revere Mall and its new historic shrine will be visited by people from all the land, partly because it is closely adjacent to Christ Church, the "Old North" of history, in whose steeple the lanterns were displayed that 18th of April night of 1775. From 300 to 500 visitors a day, year round, come to that building, and now they will visit also this new recording of men and events of a nation's birth and development. (See front cover.)

The Mall is a small man-made park, near the waterfront, carved out of the midst of slums eliminated to that extent some years ago in a very congested area. It stands in a section always residential, with business adjuncts, first for the English emigrants who followed the Indians, then after some years taken over largely by the Irish element, later by the Jewish people, and now 90 per cent Italian. The North End has been a real "melting pot" as group after group, family after family, has lived in, and moved from, the original narrow twisting streets and the foreign atmosphere, which still remains alongside modernized items of an active city. There is much appreciation of the historic environment and its significance among the present residents, as was true of their predecessors.

The current development of the Mall is artistically harmonious and fits it for practical service as a recreation spot as well as a source of patriotic inspiration. The tablets are so placed as to be read and studied from the seats for adult visitors around the sides of the tiled, paved and tree-shaded area, and not to interfere with enjoyment of the free space by the younger element.

## A Gift of High Purpose and Intelligence

The construction of the new development was made possible by the George Robert White Fund, a benefaction dating from 1922, when Mr. White, a local business man with civic foresight, gave the city $5,000,000, mainly in downtown business property, the income from which is to be used for "public blessings" and to "create works of utility and beauty for the use and enjoyment of the inhabitants of the city of Boston," especially such as would not be ordinarily provided. He specified that the trust fund should be administered by city officials, the Mayor ex-officio chairman, with a board of trustees in which should be included the head of the Chamber of Commerce, the head of the Bar Association, and city officials whom he designated. His will is an expertly constructed document with as careful provision to insure the safeguarding of his wishes as able legal talent and his own business sagacity could devise. A full financial statement in daily newspapers was directed for frequent intervals for public information. He looked a hundred years ahead; provided that none of the property be sold during that period; that if at any time the income gets so low as to draw on principal, there shall be no more expenditures until the main fund becomes intact; no project to be undertaken with less than three months' advance consideration.

During the 18 years, $3,500,000 of income has been expended, considerable of it for seven health units in seven sections of the city. The Paul Revere Mall betterment from its inception, including the taking of land, the construction, and the current statue and tablets costing $30,000, totals approximately $400,000. As the work on each undertaking is completed by the Fund Trustees, their relations to it cease. The result is turned into the usual city channels. The health units, for instance, went to the municipal Health Department, to be administered there, and maintenance to be provided from the annual budget. The Mall, as it has been and as it is now, has become part of the city park system, its care and maintenance in all aspects as with other items of that department's service. None of the White Fund can be used for maintenance.

It is not necessary to go into detail as to the patriotic value of these new tablets and the statue to the community and to the country at this particular time in affairs of nation and world. Here is intentionally expressed a purpose to remember the pioneer efforts, trials and successes of those who established a government and way of life that was cemented by the determined Revolution of the 1775 period, and to indicate to all, at home and abroad, an intention to maintain it for the future.

# Citizen Groups and Educational Bodies Coordinate

C. A. DYKSTRA, President of the National Municipal League, now acting as Director of the Selective Service, has announced a nation-wide program of cooperation between educational institutions and citizen organizations to increase the effectiveness of American self-government—a program "as important as military preparedness in the defense of the American process." The plan has the promise of wide support: 236 colleges and universities, and 32 nation-wide citizen organizations, have indicated willingness to participate in it.

By bringing together the citizens' organizations and the colleges, the program will:

1. Make possible more intelligent action at the polls in local, state and national elections, and increase public knowledge of improved processes of democratic government.
2. Put the colleges at the disposal of citizen groups to furnish unbiased information on important public problems, which many such groups now lack.
3. Provide a pattern of attack which can be established locally throughout the country in the democratic manner, to deal with the pressing problems democracy faces.

Five specific programs of action, which can be undertaken separately or simultaneously in any community, have been proposed. They are:

1. Community organization for the coordination of citizenship efforts.
2. Application within school systems of best practices in civic education.
3. Poll of youth opinion to show the needs of young people in each locality and their reactions on important public questions.
4. Citizenship training program and the induction of new voters.
5. Application of techniques to make local citizen participation in public affairs more effective.

Apply to the National Municipal League, 299 Broadway, New York.

# Sewage Treatment

## *Settling, Trickling Filters and Sludge Digestion Overcome Stream Pollution Ills at Bedford, Ohio*

*By* ARTHUR H. WEDGE
City Manager, Bedford, Ohio

COMPLETION of an up-to-date sewage-treatment plant in the early part of 1938 allowed the city officials of the city of Bedford to breathe a sigh of relief over the solution of a problem of long standing.

Bedford is a residential suburb of Cleveland, with a few moderate-sized industries and a population of about 7,500 persons. Its first sewers and sewage-treatment plant were constructed in 1913. Rapid growth in the ensuing few years caused the plant to become greatly overloaded, with the result that complaints of odor and stream-pollution were heard as early as 1918. No positive remedial steps having been taken by 1927, the State Department of Health issued an order requiring the construction of treatment works. Attempts were made to finance them by voted bond issues, which failed of approval by the electorate, probably because of wide differences of opinion concerning matters of policy and the adequacy of the proposed solution.

At the beginning of 1932 a council-manager charter went into effect. The new administration was called into conference with the state authorities and pledged itself to a thoroughgoing review and study of the problem, a definitely charted course based on the study, a program of education of the people concerning the facts in the case, and attempts to finance the necessary construction work. Before the foregoing plan could be advanced beyond its initial stages, a lawsuit filed by the Cleveland Metropolitan Park Board as owner of a park reservation on Tinker's Creek below the principal sewer outlet came on for trial. The city was enjoined to cease polluting the stream, thus adding another legal argument to the case of the proponents of action.

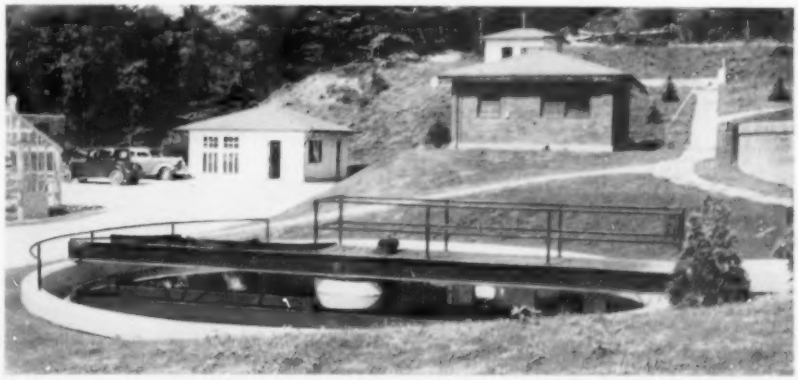
By the early part of 1933 an agreed program had been worked out, and a bond issue was submitted and carried at the general election in that year. An application was made to PWA for financing. When the matter came on for hearing, it was found that the County Sanitary Engineer had filed a competitive application for a project to construct a trunk sewer to serve Bedford and adjacent areas, treatment of the sewage to take place at the Southerly Works of the city of Cleveland. This was an alternative previously considered and rejected as uneconomic by the city. This counter-proposal, while not successful, was coupled with a difference of opinion as to financial details to effect the rejection of the city's requested loan and grant. About two years later, in June, 1936, information was obtained that an application for grant only would likely prove acceptable. Such was the case, and the bonds authorized in 1933 were sold through the regular procedure to provide the city's portion of the cost. Work on surveys and detail plans was rushed throughout the fall, and by early winter construction had started.

About 2½ miles of intercepting and main trunk sewers had to be constructed to collect and convey all the sewage of the municipality to one point for treatment. With the exception of two relatively small areas, gravity drainage was feasible for the entire system of sewers. The new sewers were of vitrified pipe and reinforced concrete pipe construction, with a maximum size of 27 inches and a maximum capacity of 9.5 mgd. Since some of the older local drainage sewers were built on the combined basis, provision was made for discharge of excess flows due to heavy rainfall into a small stream. A number of interesting features were involved, including a section of interceptor about 2,500 feet long, which was constructed in tunnel.

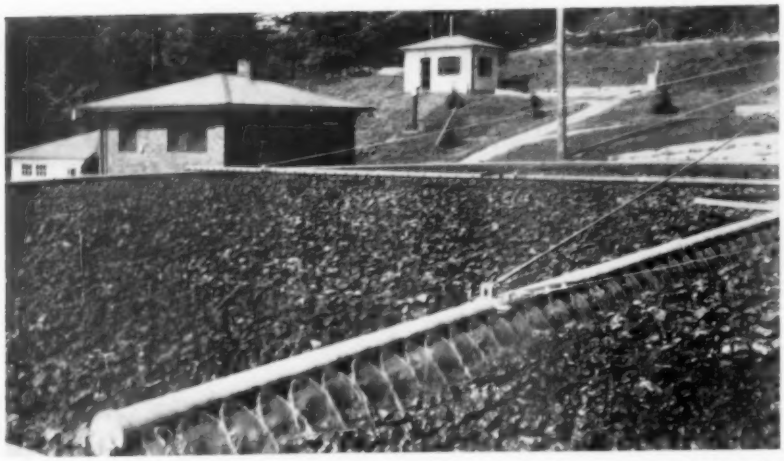
### Treatment

Existing conditions dictated a site in the extreme southwesterly section of the city. Fortunately, one was available which was ideal from the two important points of view of isolation and topography. About 30 acres were purchased to help maintain isolation.

Since the plant effluent at the selected site would flow into Wood Creek, a tributary of Tinker's Creek, above the park reservation previously referred to, it was ob-



*General View of the Bedford, Ohio, Sewage-Treatment Plant; Final Tank in the Foreground and the Administration and Laboratory Building in the Right Center*



*A Portion of One Trickling Filter at the Bedford Sewage-Treatment Works, Showing the Uniformity of Application by the Revolving Distributor*

vious that a high degree of treatment would be required for the protection of the recreational area. Engineering studies indicated the suitability of trickling filters for secondary treatment, and considerations of operating economy then clinched their selection for this purpose.

Design capacity of the plant was fixed at 1.1 mgd, based on 11,000 persons at 100 gpd, with provision for handling a maximum flow of 2.2 mgd, or double the average figure. The several units of the plant and certain important piping work were so planned and located as to make possible the eventual doubling of the size of the works on the present site.

Sewage comes into the plant from the outlet manhole of a two-pipe inverted siphon at the end of the trunk sewer. This siphon was necessary to effect a suitable crossing of a deep valley to reach the disposal site. The first operation is that of the Chicago comminutor or screenings shredder. An emergency bar screen in a by-pass is also provided. Since a few of the older streets in the central portion of the city have sewers which are still operated on the combined basis, grit - removal equipment necessarily follows screening. A Dorr Detritor of the mechanical type with a washing action attained by diversion of a small portion of the sewage-flow into the conveyor is installed.

From the conditioning devices just mentioned, raw sewage flows to a Simplex venturi-type meter and then into the two rectangular preliminary settling tanks. These give 1.5 hours detention at 1.1 mgd and are equipped with Jeffrey mechanical sludge and scum-collecting equipment.

The settled sewage from these tanks then passes to the dosing chamber, from which it is sent to the trickling filters by means of dosing siphons. These two filters have 7 feet of slag media, and the underdrains of one-piece vitrified block lead to a diametrical inspection and ventilation tunnel. PFT revolving distributors of the four-arm type operate on the head from the dosing tank. Two arms on each filter function continuously at design rate of flow, and all four arms at maximum flow, and there is intermittent operation at low flows. Either filter may be cut out of service for flooding for psychoda control or for other reasons.

Following the trickling filters is the final settling tank, which is circular in shape with a V-notch peripheral overflow weir and a Hardinge revolving sludge-removal device. This provides one hour detention at the design rate of flow.

The effluent from the final tank passes through a short outfall sewer to Wood Creek. At a convenient point on this line there is a manhole where chlorine may be applied. Chlorination is now used only during the warm months.

## Sludge Disposal

Sludge from the preliminary settling tank is drawn by gravity to the digester, which is a hopper-bottom reinforced tank with a capacity of 2.05 cubic feet per capita. Being partly above the level of the ground, it has a protecting embankment of earth to conserve heat. There is also a PFT floating cover with provision for gas collection, as well as heating coils. The control house is attached and contains piping and valves plus some space for storage of tools and small miscellaneous items of plant equipment. The final tank sludge may be pumped by a PFT sludge pump to the digester from a sump to which it flows by gravity, or, as is currently being done, it may be pumped to the preliminary tank influent.

After digestion the sludge is drawn to Lord & Burnham glass-covered drying beds, four in number and of a total area of 6,000 square feet. This allows 0.55-square foot per capita for the design population. The individual beds are relatively narrow and each is equipped with a pair of concrete "ribbons" on which a truck can be driven and easily filled for sludge removal. Sale of sludge is not being attempted, and would not be feasible, for the present at least, as there are other treatment plants nearby which have a long-established policy of free sludge for the asking. Sludge-bed drainage is returned to the pre-settling tank influent via the sump and pumps, so that no portion of the flow leaves the property except the completely treated final effluent and digested and thoroughly dried sludge.

## The Buildings

The plant buildings are three in number. There is an attractive frame-construction screen house, also used for storage of small tools, a garage-workshop-chlorine building, and a brick administration and laboratory building, all of harmonious design. The chlorinator portion of the shop building is isolated from the other parts and provided with means of quick egress to the open air in case an emergency should develop. In addition to the provision for post - chlorination mentioned above, there are facilities for pre-chlorination for odor control and for a temporary line if need develops to check ponding on the trickling filters. To date it has

not been necessary to use either of the latter. Within the past year a bacteriological laboratory has been installed in the shop building. Although not necessary to good plant control and therefore not provided in the original design, this item was installed to give added check on over-all plant results.

In the administration building basement are the main sump, two sludge pumps, gas control equipment and meter, venturi meter tubes, as many plant control valves as feasible, a hot water boiler equipped to burn either sewage gas or furnace oil as a standby fuel, for heating the buildings and digester, and toilet and shower rooms. On the main floor are the office, the chemical laboratory meter registers and a small amount of storage space. Floodlights attached to the corner of the building provide an abundance of night illumination when required. A concrete roadway and parking court serve the plant. Landscaping was designed with especial care to set off the actual plant site and harmonize with the natural beauty of the surrounding terrain.

Barring some adverse weather, the entire construction period was characterized by smooth progress, close cooperation of all the parties involved in the project, and an unusually high grade of construction work by the contractors. The tuning-up period was not difficult and the whole was brought into full operation with a minimum of adjustments to the units. Operation over a period of two years has developed comparatively few needs for alterations, and none of much consequence.

| Period | Sewage Flow Total mg | Sewage Flow Aver. Daily mg | Per Cent Reduction in Susp. Solids | Per Cent Reduction in Settled Solids | Per Cent Reduction in B.O.D. | Cost Per mg |
|---|---|---|---|---|---|---|
| 1938 (May-Dec.) ..... | 119.7 | 0.444 | 93.5 | 93.2 | 94.4 | $41.57 |
| 1939 (full year) ..... | 232.2 | 0.636 | 95.0 | 95.5 | 91.5 | $36.39 |

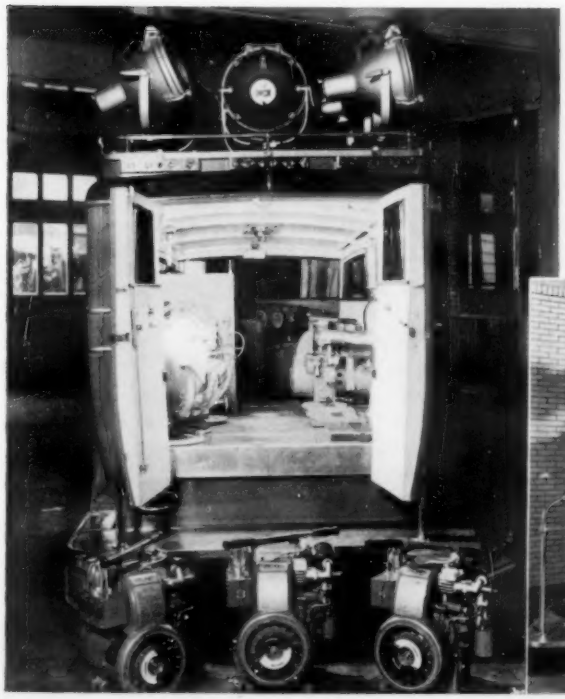
## Costs and Results

The cost of the project was as follows: trunk and intercepting sewers—$80,000; treatment plant—$158,000; land, engineering, legal and miscellaneous—$45,000; total—$283,000, of which approximately 45 per cent was a PWA grant, and the remainder the proceeds of a city bond issue.

Operating results have been excellent, as will be evidenced by the condensed table of key observations and laboratory determinations above.

Project design and field engineering was handled by Rollin F. MacDowell, of Cleveland, Ohio, with A. E. Scheible as Principal Assistant and Albert Kreiling as Resident Engineer. Ernest Kitchen and L. A. Schultz were Chief Resident Engineer and Resident Engineer, respectively, for PWA. Contracts for separate sections of the trunk and intercepting sewers were executed by Said A. Haddad and Mike Fatol, both of Cleveland, Ohio. A small sewage pumping station and force main was constructed by the Christopher-Marra Co., of Cleveland, Ohio. The general contractor for the treatment plant was the W. E. Wood Co., of Detroit, Mich., which sublet the installation of the mechanical equipment to Couse and Saunders, of the same city. Leonard Merrick, of Berea, Ohio, performed the landscaping work. L. Thomas Hagerty is Chief Operator in direct charge of the plant for the city, with T. C. Schaetzle as part-time technical supervisor, in the administration of the writer as City Manager.

# Detroit Floodlight Apparatus



THE city of Detroit, Mich., has recently placed in service a special emergency truck equipped with four Alfcolite generating units, three of 1,250 watts and one of 1,000 watts capacity, furnished by American-LaFrance-Foamite Corporation, Elmira, N. Y. The four generators are mounted side by side inside the truck, three servicing a number of 500-watt floodlights and 250-watt spotlights, while the fourth operates a loudspeaker system. The units are arranged to operate either simultaneously or independently, and may also be removed for portable use if desired.

The engine is heavy-duty, single-cylinder, air-cooled, 4-cycle with full-force-feed lubrication by pump from the crankcase. The generator is short with large diameter, and operates at low speeds. A built-in automatic governor assures constant speed.

# Parking Lots—and 30-Minute Meters to Encourage Their Use

By Alton H. Skinner
City Attorney, Kansas City, Kans.

CITIES of the first class in Kansas have been authorized since 1924 to zone property within the city for particular uses. The problem of providing parking facilities for automobiles has become acute, particularly in the multiple-dwelling, commercial, retail, and industrial zoned districts. Twenty families, or more, often reside in one apartment building. When both sides of a street within a block are lined with apartment buildings accommodating from 2 to 20 families to each 50 front feet, the disposition of automobiles used by those families creates an obstacle to traffic. A 26-foot paved street with automobiles parked on both sides parallel to the curb, becomes a 14-foot street, and the hazards incident to the use of the street for transportation purposes are increased. Numerous accidents occur when a pedestrian—very frequently an irresponsible child—attempts to cross such a street.

## Parking in the Business District

The commercial or retail districts of our cities present a problem peculiar to themselves. Occupants of second-story offices and businesses like to have their personal automobiles conveniently located so that they can take care of outside calls. Not only this, but the employees of all the businesses in the retail district also like to use the streets and alleys as parking places. The customers of beauty-shops and other retail businesses, and clients of physicians, dentists and lawyers on second floors, as well as customers of first-floor retail stores, like to have a place to park their cars while they are transacting business within the district. When automobiles were comparatively few, the people formed the habit of parking close to the place of business that they wished to patronize. Frequently what is generally denominated the principal retail district of our cities is in fact a light industrial district, and there the cars of proprietors, employees, and customers are indiscriminately mixed.

If the main business thoroughfare in such a business district is a wide street, angle parking is permitted. If the parking is reasonably close, not more than three cars can be parked in a 25-foot frontage. If parallel parking is required, not quite two cars can be parked in such frontage. If any parking is permitted, the passage of vehicles along such a street and through such a district is materially interfered with, and during the rush hours and the holiday seasons the presence of parked cars upon the main street of the city in such a district adds tremendously to the hazards of fire, for three reasons:

1. If a fire breaks out, the vehicles themselves may become involved in the conflagration, and the large amount of gasoline carried in the tanks of such cars adds to the fire hazard.

2. The owners and operators of the parked cars cannot be found, to move their cars, and almost invariably the ignition of the cars is locked and possibly the doors of 25 per cent of them, so that brakes cannot be loosened and the cars pushed away by manual power.

3. Cars moving to or backing away from the curb, likewise impede the traffic along and across the street.

In Kansas City, Kans., we have made counts at different times of the number of vehicles using main arterial trafficways and their feeders. On one street there are five intersections each of which will be called upon to carry more than 25,000 cars during the business day. All these intersecting streets, as well as the main arterial trafficways at and near such points of intersection, are parked almost continuously to their full capacity. Every car that is parked on the street near such an intersection for an unreasonable time is a closed door to the businesses in that neighborhood because it excludes a customer's car.

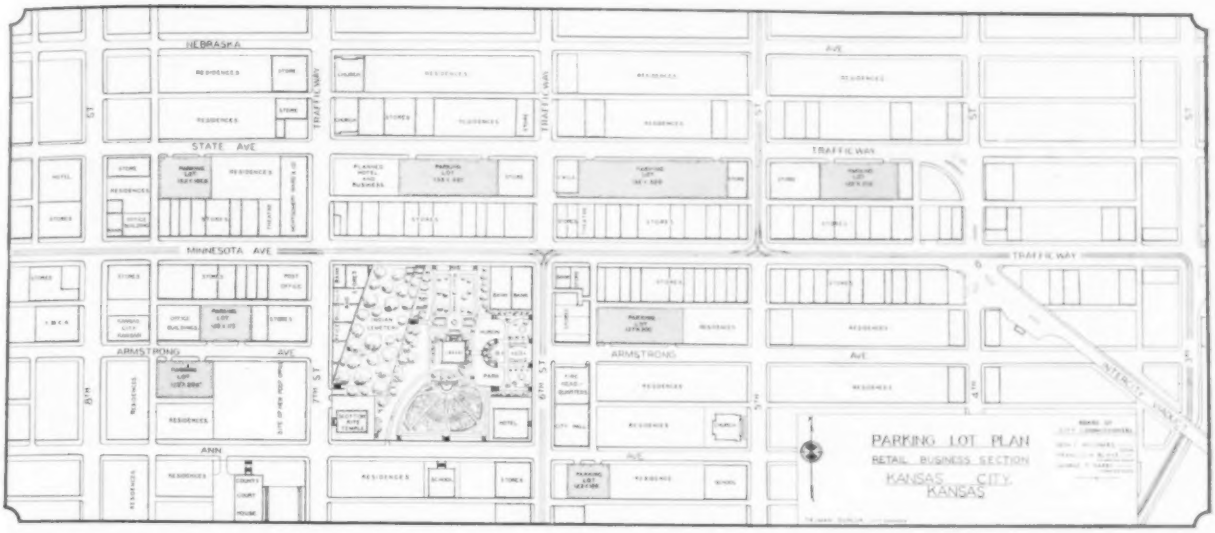
This situation indicates: (1) that the localization of heavy traffic in a business district, by its very volume, is an interruption of business unless adequate facilities are provided for parking in the immediate neighborhood; (2) that if advantage is to be taken of the volume of traffic in a business district, adequate facilities must be provided off the street on which such traffic is carried.

## A Definite Plan of Relief in Kansas City, Kans.

In Kansas City, Kans., we have made definite plans to provide off-street parking in the main retail business section. The scheme includes the further development of the business district, together with a plan which will enable a double front entrance to be made for the existing business district:

The main business street on which this business district fronts is Minnesota Avenue. The State Avenue Trafficway, one block north, is to be used for through traffic coming into the business district from the east, from the Inter-City Viaduct, Minnesota Avenue and other streets connecting with industrial districts. These meet at Fourth Street and Minnesota Avenue, where vehicles which do not desire to stop in the business district have the choice of going south one block to Armstrong Avenue, and thence west, south of the business district, where streets may be used leading to the part of the city south of Minnesota Avenue. Cars can turn north from Fourth and Minnesota Avenue and go west on State Avenue Trafficway, which is a continuation of several highways entering the city from the west, and connected with others coming to the city from the south and north. State Avenue, from Fifth to Seventh Streets, is at a lower grade than Minnesota Avenue, and by far the largest development of existing business is on Minnesota Avenue between those two blocks, a distance of a quarter of a mile.

What is planned is: to buy the inside lots on the south side of State Avenue, between Fourth and Fifth Streets, be-




tween Fifth and Sixth Streets, and between Sixth and Seventh Streets; and a smaller area between Seventh and Eighth Streets; also, to buy inside lots between Fifth and Sixth Streets on the north side of Armstrong Avenue, and also between Seventh and Eighth Streets.

On the through State Avenue Trafficway we plan to prohibit parking, so that traffic going through the city may move without let or hindrance, under control of traffic lights.

On the streets where parking is now allowed, diagonal parking is permitted on Minnesota Avenue, and parallel parking on the intersecting streets and parallel streets for two blocks north and two blocks south of Minnesota Avenue. Not more than 850 cars may be parked there for the limited period permitted in this area. If the parking-lot areas off the streets are purchased, and parallel parking only is permitted on all the streets except State Avenue, where no parking is to be allowed, the number of cars that may park within easy walking distance of the retail establishments would be increased to approximately 2,000 cars.

Under proper regulation of these parking areas to prevent abuses such as now exist in this area, occasioned by business men and professional men and their employees occupying the parking area, it will be seen that a greater number of customers of all classes of business conducted within the area can be accommodated at one time, and the business district will be preserved where the owners of the property have already developed it for such purposes. The frontages on the intersecting streets constituting the corner properties and for a distance back of them will be preserved, and it is thought that the opposite side of the streets from the front of these parking lots will also be made more valuable for business purposes, and will be improved as such.

The habit of trading in the existing business district will be maintained, and the freer passage of vehicles throughout the business district, on Minnesota Avenue in front of the stores, is planned to be taken advantage of by routing all common carriers, street cars and buses through this business district. As there are a number of transfer points within the district, it is reasonable to believe that shopping will be increased within the existing business district from patrons of such lines, especially at transfer periods of travel.

It has been pointed out that State Avenue is lower from Fifth to Seventh Street than Minnesota Avenue, and with the parking lots at practically the same grade as the basement floors, the basement floors by the addition of fronts upon the rear of the buildings can be made available as salesrooms in place of their present usage, and this at a minimum of expense.

The development of the corner properties for business purposes off Minnesota Avenue, and on State Avenue and the different intersecting streets, is much more readily possible because it will be easy to leave the parking lot and go directly into the stores on that side facing the parking lots.

## A Decentralizing Influence

The absence of parking facilities within the business district, adequate to handle the business that is now being offered by the public, has led to a decentralizing development, particularly in the grocery business. Chain stores are buying numerous sites within the city, at least double the size of their building requirements; half of the site is covered with the building, the other half is made a parking lot alongside the building, and the general public is invited to use the parking lots and trade at these stores. Scattered all over Greater Kansas City are a number of such stores, which are doing a tremendous grocery business. The same thing is true of popular restaurants and refreshment houses, and an inspection of them will show that that kind of business has been largely removed from the downtown retail business districts.

Our plan has been, in the retail business district, to have a limit of three-hour parking in such public parking lots, free of charge, and to have the lots floodlighted so that they would be safe at night. *Light is a good policeman.* It has been suggested that, in order to further popularize the use of the parking lots, parking meters be placed on Minnesota Avenue within this business district, and all intersecting streets for a distance of one block both north and south from the Minnesota Avenue Trafficway, and these set at not more than 30 minutes. This suggestion is made in the belief that when a man is in a hurry and insists on going in the front way, and does not desire to use the parking lot, he will pay the 5-cent charge for the parking meter privilege. The funds received from the parking meters would pay for the meters and the daily expense of policing and lighting the main parking lots.

Under our plan, there would be some five acres of property included in the parking lots. A bill applicable only to Kansas City was passed by the Kansas Legislature and provides that the expense of purchasing the ground and improving the parking lots shall be borne by a benefit district assessed according to the value of the land with the improvements and the benefits accruing to each piece of property. Kansas City tried to proceed under this law, but the action was opposed by certain property owners, and an injunction was granted by the District Court on the ground that the act was special legislation forbidden by the Constitution. The Supreme Court affirmed the decision of the District Court.

It goes without saying that the streets of any city, particularly of any industrial city, should not be obstructed by the cars of employees, and that such cars should be stored in convenient parking stations, private or public, off the streets and convenient to the establishment in which such employees work. The storage of vehicles on a residence street for any considerable period of time, constitutes a nuisance. A recent bulletin of the Public Admin-

istration Clearing House shows that this problem has been studied by other cities. The bulletin states:

Off-street parking space for every new apartment house, hotel, store and theater —special causes of parking congestion—is being required by more and more city zoning ordinances. Small cities as well as large ones are adopting this requirement, 35 "samples" collected by the American Society of Planning Officials show.

Among cities which specify that every new multiple residence must have a car-parking space are Bronxville, Croton-on-Hudson and Rochester, N. Y.; Bound Brook, Northvale, Hillsdale and Nutley, N. J.; Evanston, Flossmoor and Glencoe, Ill.; and Los Angeles and Santa Monica, Calif.

Typical of the provisions applying to multiple-dwelling districts is the Evanston ordinance, which says that every such dwelling newly erected shall provide garage or parking space within the building or on the lot or adjoining property sufficient to accommodate at least one motor vehicle for every two living units. Several of the ordinances, including those of Los Angeles and Santa Monica, require parking space for every individual dwelling unit.

Parking provisions are required for hotels in Southampton, N. Y., and South Plainfield, N. J. Southampton's zoning ordinance requires the hotel to provide 300 square feet of private parking space on the same lot as the hotel or within 200 feet for each sleeping room. South Plainfield makes the requirement 200 square feet.

The theater parking provisions in most of the zoning ordinances specify accessible parking space near the theater big enough to accommodate at least one car for every five to ten seats. Evanston and Riverside, Ill., Mequon, Wis., and San Marino, Calif., are among cities with such provisions.

The restaurant parking area is a less usual requisite, according to the Society, which cites an ordinance of Hastings-on-Hudson, N. Y., requiring restaurants in certain residence zones to supply accommodation for one car for every four seats in the dining room.

Du Page and Lake Counties, Ill., and Hillsdale, N. J., have enacted ordinances requiring stores to provide parking space.

Mequon, Wis., is unusual in requiring roadside stands to provide parking facilities for not less than six vehicles on or adjacent to their premises.

The Supreme Court of Kansas very pointedly said that the parking problem was not peculiar to Kansas City, Kans., but affected every first-class city, particularly Wichita and Topeka. The general trend of the decisions has been that where city officials seek to act in this way—condemn property and pay for it by benefit-district assessments—it must be clear (1) that it is for a public purpose and (2) that the city has authority to issue the bonds and make the assessments. Kansas City in this matter sought to proceed by a state law that would meet our necessities; but when both the District Court and the Supreme Court stated that a general law should be passed, they did two things: (1) condemned the special legislation, and (2) suggested a general law for the cities facing this problem.

In my judgment, a general law should be applicable to all first-class cities, and, from what I have observed, there are many second-class cities that have an equal need for it. I believe that the business districts that would pay the great proportion of the cost of the purchase of the land and the improvement of such free parking facilities, if such a law were passed, would find that the public at large, as the streets were improved, would pay for the streets which lead to these business and industrial districts; and the business districts would be immediately benefited by the trade preserved and created by establishing parking facilities immediately adjacent.

I believe that the multiple-dwelling districts should be taken care of by proper building ordinances and zoning restrictions at the expense of the owners of the large apartment buildings which are being built.

In no case, however, should apartments be permitted to exist over the tops of garages. Two things can be gained by requiring apartment houses to provide parking lots: (1) a place for off-street parking of cars, and (2) more light and air in and about the apartment house.

In recent travels through cities having large industrial areas, such as Chicago, Detroit and other eastern cities, it has been observed that someone has acquired areas close to corners of the plants on which employees' cars are parked. All the large automobile factories of Detroit have immense areas where employees' cars are parked, as many as forty, fifty, and sometimes more, acres in each parking lot.

This is a problem that must be met. Widening the streets to take care of automobile traffic is not sufficient. In Kansas City, with the inside block parking areas, I am quite certain that the result will be to localize and concentrate retail business, increase values, and afford greater convenience to the public to carry on their shopping, patronize professional men and recreational activities and the theaters.

# Trades Unions Aid in Defense Housing Program

COOPERATING to speed up economical construction of low-rent housing for national defense workers, building trades unions throughout the country are agreeing to work double shifts of mechanics at straight time wages on defense housing projects financed by the United States Housing Authority.

This arrangement, which cuts building time in half without substantially increasing cost, already has been made in seven localities, USHA reports. It is based on resolutions adopted by the local unions which provide that they will furnish double shifts at straight time on an 8-hour day, 40-hour week basis. Only where individuals or shifts work more than 8 hours in one day, or more than 40 hours in one week, is an overtime rate to be paid.

Localities in which unions already have adopted this resolution are: Montgomery, Ala.; Columbus, Ga.; Pensacola, Fla.; East Moline, Moline, Rock Island and Rantoul, Ill. Negotiations leading to the setting-up of similar arrangements in other localities where USHA defense housing projects have been approved by President Roosevelt now are being carried on by Walter V. Price, director of the USHA Labor Relations Division.

Commenting on this cooperation by building trades unions, Nathan Straus, Administrator of the United States Housing Authority, pointed out that organized labor has staunchly supported the USHA program since its inception. He cited the fact that there has not been a serious labor dispute in connection with the construction of the approximately 270 USHA public housing projects now under way or completed in about 150 localities.

This has been due in part, he said, to a standard resolution adopted by building trades unions covering jurisdictional disputes and wage rates. The resolution provides that there will be no stoppage of work because of jurisdictional disputes before the Building Construction Trades Department of the American Federation of Labor has had full opportunity to adjust the differences, and that the work will be completed at the wage rates in effect at the time bids are opened. This resolution has been adopted by 162 building trades councils and by 1,710 local trades unions according to a recent check-up, Administrator Straus said.

# Water-Bill Problems Solved by Triplicate Bills

## *Schenectady Department of Water Installs New Billing System Which Fits 98 Per Cent of Meter Readings*

*By* JOHN H. BURWELL
Engineer, Department of Water, Schenectady, N. Y.

THE meter billing system recently installed in the Department of Water, Schenectady, has eliminated all pen work, inasmuch as the bills, record sheet and journal sheets are typewritten in one operation. A Burroughs' electric typewriter especially built for billing purposes is used. The journal sheets are inserted and remain stationary until the sheet is filled, two sheets of pressed edge carbon paper being used.

The triplicate bills are lined up on the record sheet by folding the perforated end around the left side of the record sheet. If the operator is entering an item on the first line under "Billing Date," the triplicate bill is lined to the first figure 1 on the record sheet. The record sheet, with the bill form held on line 1, is slipped in front of the already stationary journal sheet, the machine is then locked and the information typed. The machine is then unlocked, the record sheet and bills removed, leaving the journal sheets in the machine. A space is made before the next bill is entered.

### Corporation Bills

We find that the system works remarkably well and covers approximately 98 per cent of the readings. The exceptions are the corporation bills, inasmuch as several meters are grouped so as to allow the minimum rate. In these cases the record sheets have to be entered separately, the recapitulation sheet appearing only on the rendered bills, and an itemized statement of all readings and total consumption attached.

Inasmuch as we prefer the address on the journal sheets, we have devised a plan of releasing the carriage of the machine, without interfering with the stationary journal sheets, and drawing up the triplicate bill to the line "Property at," thereby inserting the address directly under the consumer's name.

DEPARTMENT OF WATER
CITY OF SCHENECTADY
(The back of this section is the third copy – for the Department of Water)
RECORD SHEET
JOURNAL SHEET
William Brown
606 Smith Street
100 South Street

FORMS FURNISHED BY THE MC BEE CO., ATHENS, OHIO, IN COOPERATION WITH THE DEPARTMENT OF WATER

*Schenectady's new water-billing forms: the triplicate bill with tab; the record sheet for one customer; and the journal sheet for the day's entries.*

*The triplicate bills are mailed out in window envelopes. The original copy is receipted for the customer, the second copy is for the Bureau of the Treasury, and the third for the Department of Water.*

# Six Municipal Diesel Plants in New York State

# How They're Doing

OF THE 51 municipalities in New York State which distribute electricity to the public, 19 operate generating plants and 32 operate distribution systems only. One generates for municipal uses only. Of the nineteen plants, six use steam for generation, six use water, six are diesel plants, and one uses gas. This article presents for the diesel plants some of the statistics for 1939 compiled by T. J. McKee, Secretary, Municipal Electric Utilities Association of New York State.

The municipalities owning diesel-electric plants are listed in the table on p. 55, together with the capacities of the plants and certain significant financial figures. It is seen that all these plants are earning considerably more than expenses and have ample reserves for replacing obsolete equipment.

## Arcade

Arcade has a diesel plant with steam standby. Power is generated by two 4-cycle 500-hp Winton engines installed respectively in 1936 and 1937. The plant produces 10.6 kwh per gallon of fuel oil.

The electric property is valued at $293,322, the long-term debt amounts to $67,952, and a surplus of $238,210 has been accumulated. There are 933 residential customers, 128 commercial, and 18 industrial, paying 1939 bills totaling respectively $30,491, $12,082, and $12,455. All revenues aggregated $61,570, and the net income was $7,716.

Residential rates are 95 cents for the first 12 kwh or less, 4.5 cents for the next 48 kwh, 2.5 for the next 140 kwh. Commercial rates are $1.50 for the first 22 kwh, 4.5 for the next 178, and 3 cents for the next 100. The street-lighting rate is $18 per year for each 100-cp lamp and $24 for each 250-cp lamp.

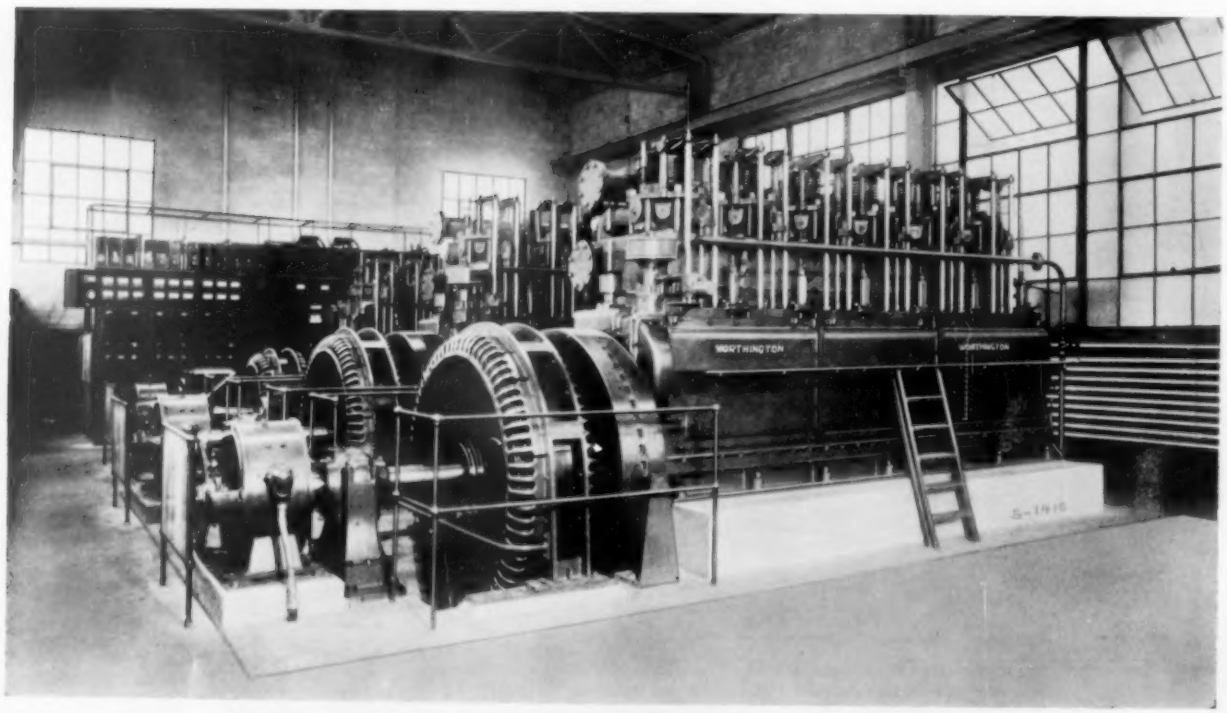
## Bath

Bath operates a gas and diesel plant with steam standby, producing 12.12 kwh per gallon of fuel oil. These are the engines:

| Horsepower | Cycles | Year Installed | Make |
|---|---|---|---|
| 450 | 4 | 1934 | Worthington |
| 450 | 4 | 1934 | " |
| 300 | 4 | 1934 | " |
| 685 | — | 1939 | Superior |

The electric operating property of Bath is valued at $403,110; the long-term debt $8,000, and the accrued surplus, $415,056. The 1,484 residential customers paid $44,186 in 1939; the 292 commercial customers $34,519. All revenues, $88,601; net income, $29,090.

Residential rates are 65 cents for




*The Three Worthington Diesel Engines in the Bath, N. Y., Municipal Electric Plant*

the first 11 kwh, 4 cents for the next 49 kwh, 2 cents for the next 140 kwh, and 1½ cents thereafter. Commercial rates are 5½ cents for the first 50 kwh, 2 for the next 350, and 1½ cents thereafter. Street lighting is furnished for a lump sum of $6,000 per year.

## Freeport

Freeport has a straight diesel plant operating the following diesel engines:

| Horsepower | Cycles | Year Installed | Make |
|---|---|---|---|
| 750 | 2 | 1923 | Busch-Sulzer |
| 750 | 2 | 1924 | " " |
| 1,125 | 2 | 1927 | " " |
| 1,125 | 2 | 1927 | " " |
| 1,500 | 2 | 1929 | " " |
| 3,300 | 2 | 1937 | " " |
| 3,300 | 2 | 1937 | " " |

| | —Last Fiscal Year— Kwh per Gallon Fuel Oil |
|---|---|
| Newest engine | 13.34 |
| Entire plant | 12.20 |

The property is valued at $2,261,906; long-term debt is $87,000, surplus, $2,443,243. The 5,455 residential customers paid 1939 bills totaling $200,035; the 893 commercial customers, $138,445, the 30 industries, $5,563. All revenues aggregated $428,870, net income $96,172.

Residential rates are 90 cents for first 14 kwh, 4.1 for next 26, 3.3 for next 60, 2.3 for next 100 kwh. General rates are 90 cents for first 14 kwh, then 4.1 and 3.3 and 2.5 cents.

## Greene

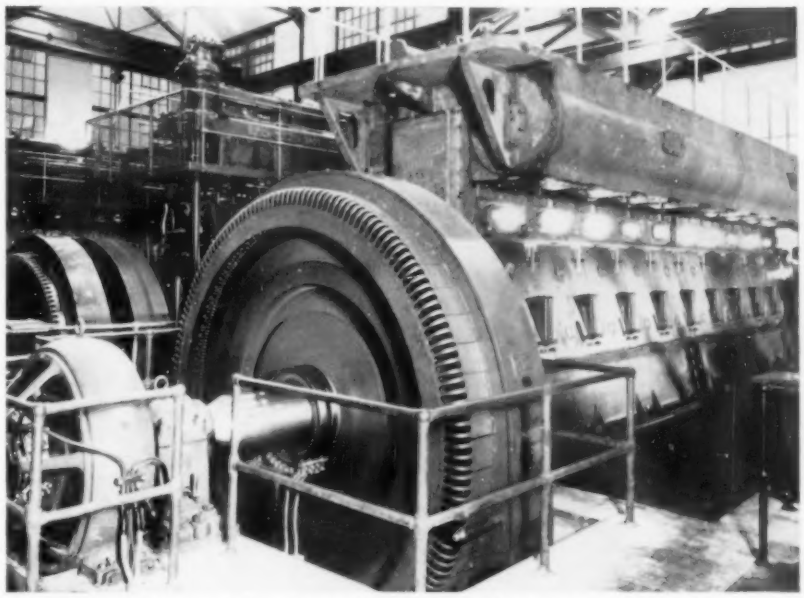
The plant at Greene operates a 300-hp 2-cycle Fairbanks-Morse diesel engine installed in 1934 and producing 10 kwh per gallon of fuel oil.

The electric property is valued at $78,946; there is no long-term debt; accrued surplus, $51,913. The 462 residential customers paid $17,831 in 1939; the 90 commercial, $10,896; the 10 industrial, $3,539. All service revenues totaled $36,675; net income, $8,437.

Residential rates are 9 cents for the first 10 kwh, 7 cents for next 25, 4 cents for next 40 kwh. Commercial rates are 9 cents for first 10 kwh, 8 for next 40, 5 for next 50, 4 for next 500 kwh. The municipal rate is 3 cents per kwh.

## Greenport

The operating property is valued at $386,054; long-term debt is $9,000; accumulated surplus, $569,497. The 898 residential customers paid $36,797 in 1939; the 167 commercial customers, $27,221. Total revenues were $85,735; net income, $18,197.



*The Most Recent of the Seven Busch-Sulzer Diesel Units Operating in the Freeport, N. Y., Municipal Power Plant*

| Horsepower | Cycles | Year Installed | Make |
|---|---|---|---|
| 400 | 2 | 1927 | Busch-Sulzer |
| 600 | 2 | 1929 | " " |
| 1,000 | 4 | 1932 | McIntosh & Seymour |

| | —Last Fiscal Year— Kwh per Gallon Fuel Oil |
|---|---|
| Newest engine | 12.08 |
| Entire plant | 11.38 |

## Rockville Center

| Horsepower | Cycles | Year Installed | Make |
|---|---|---|---|
| 8—1,825 | 4 | 1920 | McIntosh & Seymour |
| 2—1,250 | 4 | 1920 | " " |
| 1—1,250 | 4 | 1931 | " " |
| 1—2,865 | 4 | 1933 | " " |
| 1—2,865 | 4 | 1937 | " " |

| | —Last Fiscal Year— Kwh per Gallon Fuel Oil |
|---|---|
| Newest engine | 12.8 |
| Entire plant | 12.5 |

The electric property is valued at $2,457,801; long-term debt is $430,000; accumulated surplus, $1,495,371. The 4,923 residential customers paid $227,325 in 1939; the 706 commercial customers, $111,888; the one industrial customer, $980. All electric service revenues totaled $406,277; net income, $97,297.

Residential rates are 90 cents for the first 14 kwh, 4.1 for the next 26, 3.3 for the next 60, 2.3 cents for the next 100 kwh. Commercial rates are 5 cents for the first 40 kwh, 4.2 for the next 20 per kw demand but not more than 100 kwh, 3.6 cents for the next 20 kwh per kw of demand but not more than 600 kwh. The power rate is 4.1 cents for the first 100 kwh, 3.2 for the next 200, 2.6 for the next 900, and 1.8 cents thereafter.

| | Kw Capacity | Expenses as % of Revenue | Depreciation Reserves | Total Net Contribution to Municipality | Value of System Per Capita |
|---|---|---|---|---|---|
| Arcade, 3,600 | 900 | 87 | $108,368 | $107,509 | $81 |
| Bath, 4,000 | 1,775 | 67 | 103,314 | 55,532 | 100 |
| Freeport, 19,475 | 8,456 | 78 | 814,141 | 522,606 | 116 |
| Greene, 1,379 | 203 | 77 | 30,164 | 17,461 | 57 |
| Greenport, 4,000 | 1,667 | 79 | 159,541 | 246,953 | 96 |
| Rockville Center, 19,050 | 7,100 | 76 | 833,318 | 655,233 | 129 |

## Military Leaves for City Employees

AN ordinance recently passed in Milwaukee provides that city employees who enter the Army, Navy or Marine Corps shall be granted a leave of absence during service. Upon release from service they shall be reinstated in the positions they formerly held, if they report for work within 40 days. In case the positions no longer exist, their names shall be placed upon reinstatement lists for similar positions, provided they are physically capable of performing the duties of the latter. Appointees to positions made vacant by leaves of absence shall hold their positions temporarily only, and not continue to the exclusion of persons returning from service. For copies of the ordinance write Ovid B. Blix, Associate Chief Examiner.

# Safe Streets Throughout the Year

## *Cleveland Keeps Its Streets Clear of Ice and Snow*

*By* Miles E. Evans
Director of Public Service

FOR two years in succession, in 1938 and 1939, the city of Cleveland, Ohio, has won the National Traffic Safety Award of the National Safety Council as the safest city of more than 500,000 population. Cleveland is proud of this distinction, for traffic safety today is a major responsibility of all cities large and small. It involves some of the most difficult problems any city has to solve, since they are not encountered in any other municipal work. There are at least two major reasons for this. One is that our American cities grew to enormous size before there was any serious traffic problem, and another is that the forces of nature are constantly interfering with traffic, presenting new problems almost as fast as one set of difficulties is solved.

The city's executives realized at an early date that all the factors of safety are entirely dependent on normal driving conditions. For instance, speed regulations which are reasonable and safe on a through street that is dry and clear may be completely unsafe in a few minutes if the roadway is covered with a sheet of slippery ice. Traffic officers at important posts must have confidence that the cars they order to stop can stop and will not skid sideways or slide forward and create congestion that may cause an accident.

Cleveland recognizes the importance of keeping its streets bare and clear of ice and snow especially in the downtown area and the main arteries throughout the city. If this can be done, we believe it is better than doing a makeshift, halfway job on all streets and a really thorough job on none.

### Preparedness

One important factor in Cleveland's safety record is preparedness, but preparedness means more than merely watching the weather forecasts and owning snow- and ice-fighting equipment. We watch the weather and are in constant touch with the Weather Bureau, the Cleveland Airport and the automobile associations. Weather forecasts, although far more accurate today than ever before, are not always 100 per cent perfect. Many a storm scheduled to miss Cleveland entirely changes its course and in practically no time covers the city with snow or, what is worse, ice and sleet. Unfortunately, we are unable to compete successfully with nature in the matter of time involved in undoing what nature has done.

We have the usual modern snow and ice control and removal machinery with which all street maintenance officials are familiar. However, we believe we do our job more thoroughly and with a smaller proportionate investment in expensive machinery and in manpower because of our speed methods and the use of rock salt.

### The Salt Trucks

We have found that if we can get our salt trucks out and busy right at the start of a storm, we can save many weary hours of plowing, scraping, shoveling and trucking snow later on. The reason is that if the storm turns out to be a light one, our early spread of rock salt will, in many cases, melt it away completely. If the storm is severe, with a heavy fall of snow, the work of the plow crews is made just that much easier because the rock salt keeps the snow from packing down and bonding to the pavement surface, so that one pass of the plow can remove it.

In order to get the rock salt out on the streets immediately and to keep ahead of the storm, we maintain what we call stand-by equipment at strategic locations. It consists of modern salt spreader trucks already loaded with crews ready to start work at a moment's notice.

We treat snow and sleet as an emergency that requires quick action, just as a fire demands quick action from our Fire Department.

In addition to the stand-by equipment, there are other trucks, ready for either day or night use. These are manned by experienced crews, and when not in service are used in the regular routine cleaning of streets and catch-basins.

## Boxes for Salt and Abrasives

Every year, at the beginning of the winter season, more than 100 boxes each containing about 500 pounds of rock salt mixed with abrasive material, are placed at dangerous intersections, hills, railroad crossings, underpasses and safety zones throughout the city. The boxes are unlocked and their contents are available for use in emergencies. In addition, we place stockpiles of the same material throughout the city where it is likely to be most needed. We ask the police and the public, in cases of emergency, to use these materials and to spread them on slippery or icy spots, which temporarily relieves any dangerous condition until it can be taken care of by the regular crews.

## "No Parking" at Catch-Basins

We have taken a tip from our Safety Department, which will aid materially in keeping catch-basins clear. It is planned to prohibit parking over catch-basins in congested areas, by rules similar to the "No Parking" restrictions around fire hydrants. The reason for this is that with the proper use of rock salt, much of the snow and ice will melt and drain away if it can reach the catch-basins and get into the drainage sewers. We insist that the salt be spread clear to the curbs on both sides of the street, which helps to avoid one of the worst conditions that street officials have to meet in heavy snowstorms, namely, where snow is swept off the sidewalks and plowed to the gutter from the street, creating a mound of hard packed snow right at the point which should be clear—the gutter.

Where snow is so heavy that it has to be plowed aside to await removal later, we try to plow clear to the curb and pile the snow on the curb, leaving the entire pavement bare for traffic. In order to make this possible, we spread rock salt clear to the curb, which tends to prevent compacting and freezing of the mounds of snow. By keeping the gutters and catch-basins clear, the water and slush from melting snow and ice get a chance to drain away, saving a lot of work for many men and machines.

With the stand-by equipment it is possible to get the salt spreaders out on the street as soon as snow begins to fall, and they are started immediately. If the snowfall reaches a depth of more than 2 inches, plowing is started, moving the snow clear to the curbs.

The greatest trouble is from sleet, or from light, thin falls of snow that melt and then freeze in a sheet of ice. For such conditions we establish our crews at strategic locations and begin to spread salt as soon as the streets become slippery. In these cases rock salt is applied near all main traffic lights and also in the center of the block about midway between traffic lights. Motor traffic will spread the salt over the entire pavement.

For long stretches of boulevards and arterial streets, rotary spreaders are more economical and effective, while spreading by hand is efficient enough for short sections. When spreading rock salt by hand, we station two men at the rear of each truck, working with shovels, while the truck travels at speeds of 7 to 9 miles an hour.

It may seem to be a somewhat unnecessary precaution to have the stand-by equipment loaded and ready for action all winter long. This has proved to be a preventive maintenance which provides the city of Cleveland with the safest streets at the earliest possible moment after a snow or sleet storm.

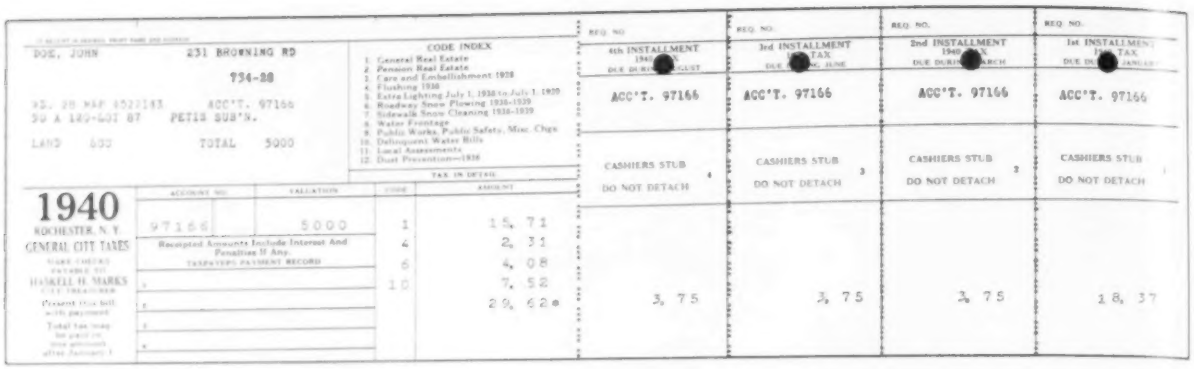
The two successive annual awards to the city of Cleveland by the National Safety Council are at least some substantial evidence that we have been able to do this. Yet this added safety is not our only gain. We believe that we have demonstrated that our system of keeping ahead of storms by being prepared and attacking early is the most economical method of handling this troublesome problem.

*Cleveland executives with one of the rock salt rotary spreader trucks which are maintained fully loaded and ready for work all winter long. The officials are, left to right: Mayor Harold H. Burton; Miles E. Evans, Director of Public Service, who is the author of this article; A. M. Allen, Commissioner of Motor Vehicle Maintenance; and Charles J. Sheets, Commissioner of Streets*

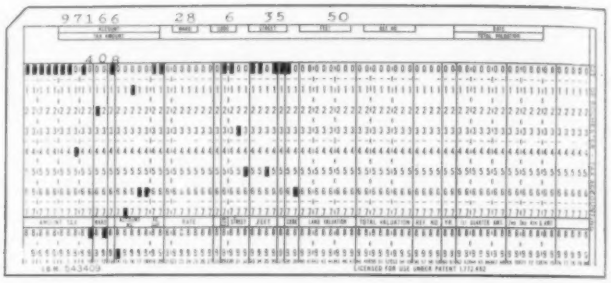
## Industrial Expansion Conference

**A conference, The Expansion of Industrial Communities, with respect to general planning and housing, is to be held November 29 and 30, at the University of Michigan, Ann Arbor, under the auspices of the College of Architecture and Design. Current problems arising from the present industrial expansion program are to be presented by experts in the fields concerned—public officials, and representatives of architecture, the building industry, real estate groups, and social agencies. There will also be opportunity for discussion by members of the conference.**

**Those interested in attending the conference are urged to write for detailed information to Dean Wells Bennett, 207 Architectural Building, Ann Arbor, Michigan.**


DOE, JOHN 231 BROWNING RD
734-28
ACC'T. 97166
PETIR SUB'N.
LAND 600 TOTAL 5000
CODE INDEX
1. General Real Estate
2. Pension Real Estate
3. Care and Embellishment 1938
4. Flushing 1938
5. Extra Lighting July 1, 1938 to July 1, 1939
6. Roadway Snow Plowing 1938-1939
7. Sidewalk Snow Cleaning 1938-1939
8. Water Frontage
9. Public Works, Public Safety, Misc. Chgs.
10. Delinquent Water Bills
11. Local Assessments
12. Dust Prevention—1938
1940
ROCHESTER, N. Y.
GENERAL CITY TAXES
HASKELL H. MARKS
CITY TREASURER
ACCOUNT NO. 97166
VALUATION 5000
TAX IN DETAIL
CODE 1 AMOUNT 15.71
CODE 4 AMOUNT 2.31
CODE 6 AMOUNT 4.08
CODE 10 AMOUNT 7.52
29.62
Receipted Amounts Include Interest And Penalties If Any.
TAXPAYER'S PAYMENT RECORD
4th INSTALLMENT DUE AUGUST
3rd INSTALLMENT TAX DUE JUNE
2nd INSTALLMENT DUE MARCH
1st INSTALLMENT TAX DUE JANUARY
ACC'T. 97166
CASHIERS STUB DO NOT DETACH
3.75
18.37

# Punched Cards Simplify a Tough Tax Job




FOR several years the city of Rochester, N. Y., has maintained individual tax ledgers showing at a glance all current and back taxes. Each sheet carries ten years of these data posted by Sundstrand accounting machines. The amount of original searching to accumulate these data, completed in 1936, is indicated by the fact that there are twelve elements or classifications of taxes, as follows:

| | Class | Number of Accounts |
|---|---|---|
| 1. | General real estate | 90,000 |
| 2. | Pension real estate | 10,000 |
| 3. | Care and embellishment | 8,000 |
| 4a. | Dust prevention, oiling | 20,000 |
| 4b. | Flushing, paved streets | 70,000 |
| 5. | Extra lighting | 10,000 |
| 6a. | Snow, roadway | 80,000 |
| 6b. | Snow, sidewalk | 80,000 |
| 7. | Water, frontage | 9,000 |
| 8. | Water, delinquent | 25,000 |
| 9. | Local assessments | 10,000 |
| 10. | Miscellaneous | 1,000 |
| | | 413,000 |

Each next year's taxes are currently computed and distributed by International Business Machines, generally at the rate of one classification per month. For the special tax charges — not including real-estate or unpaid water bills—the Public Works Department keeps a record of total costs or charges for such work as snow removal and flushing performed on each street. In 1939, this list was forwarded to the Assessor's Office, which then furnished to the Tabulating Department a record of the front feet of property on each street covered.

This was done for the first time in 1939. In that year cards were punched for each special tax or classification charged to each taxpayer, a total of some 450,000 cards, each punched with ward number, code for the tax charge, street, the account number, frontage for special assessments, valuation for real estate tax.

Beginning with 1940, the Public Works Department forwards to the Assessor's Office a list of new and discontinued work. The Tabulating Department is then given a list showing the account numbers covered by these changes. New cards are punched to record the changes. Where there are no changes, the preceding year's cards are retained for current use.

Since the charges are distributed on a frontage basis, the total amount of money spent on each improvement or operation is divided by the total frontage improved, thus giving a per-front cost which is applied to each individual property, throughout the city, which received the improvement. The multiplication is obtained by running the punched cards through an automatic multiplier at the rate of 15 cards per minute. At this rate, the total multiplication of the 400,000 cards consumes approximately 450 hours per year.

These cards, into which the amount of the special tax has been punched, are now sorted by ward and account number, after which they are collated with all the other cards into which special taxes have been punched. The special-tax extensions go forward chronologically about as follows:

In February, the Care and Embellishment charges are punched by the multiplier; then the Dust Prevention charges are punched. These cards are then filed.

In March, the Water Frontage charges are punched.

In April, the Flushing charges are punched or extended, and these cards are collated by machines with the cards punched in February, at a speed of 300 cards per minute.

In May, the Snow Removal from Roadway charges are punched.

In June, the Snow Removal from Sidewalks charges are punched.

And so on, until in September the delinquent water charges are punched, and by October 31 all the special charges have been punched into cards and collated.

From October 15 to November 15, the general real estate cards are punched with their respective valuations, by account number for every property in the city. On No-

vember 15, the Common Council declares the real estate tax rate. Taxes at this rate are computed for 85 steps from $5 to $25,000. "Master cards" are then punched for all these amounts, including four installments. The master cards are sorted by machine so that each is in front of all the cards of corresponding valuation. The cards are then run through a reproducing gang-punching machine which extends total tax and installments on each card at a speed of 100 cards per minute. Property cards with valuations exceeding $25,000 are extended in an automatic multiplier machine at the rate of 15 cards per minute. After the extension, the cards are tabulated and balanced against the account rolls of the Assessor's Office.

## Treasurer's Roll and Tax Bills

By use of a collator—a machine which converts two perfect sorts of cards into one sort—the real estate and the local improvement cards are merged during the last two weeks of November. A tabulation by wards—the Treasurer's Roll—is then made. This is used as a journal for posting to the unit ledger cards, which are thus kept up to date. This cooperation between the Tabulating and the Unit Ledger departments has reduced the December congestion and overtime of former years. While the Unit Ledger Department is posting the taxpayers' accounts, the cards which created the posting journal are again run through the machine to make the tax bills. Consequently, the same data punched into the cards must appear on the tax bills.

## Tabulating Department

At the completion of billing, the cards are filed as a master file for the new year. During the ensuing year this file is kept accurate by means of a notification system, by which the various departments involved notify the Tabulating Department of changes in the status of any property.

In addition to the tax work described, the Tabulating Departmetn of the City Comptroller's office handles the water accounting and billing and stores control for the city of Rochester. It is estimated that the time of the personnel of ten is distributed as follows: five persons' time for tax work, four for water accounting, one for stores control.

The actual work of the Tabulating Machines installation has been described in some detail to give city officials an insight into the values and possibilities of these automatic electrical accounting machines which take these superhuman operations in their stride without burdening the operators with drudgery or nervous tension. At present the three jobs of tax, water, and stores accounting have been so scheduled that 25 per cent of both machine and personnel time are available for other service. The work is under the supervision of Deputy City Comptroller and Auditor Fred W. Ereth and Louis B. Cartright, City Manager of Rochester and former Comptroller.

# Large-Scale Map of San Francisco

*This 41 x 37-foot map, on a scale of 1 inch to 100 feet, was made by WPA workers under the sponsorship of the City Planning Commission. It is mounted on a platform. The photograph shows the dedication ceremony*

# Treating Water of High Color

## *Filtration Plant of Norwalk, Conn., Located in Zoned High-Class Residential District in New Canaan*

THE water impounded for treatment at the New Canaan rapid sand filtration plant of Norwalk is a typical New England upland water with a color varying from 22 to 70 and an alkalinity from 20 to 6 in times of low and high water respectively. A water of zero color is delivered regularly to the mains; still, in spite of treatment of the filtered water with lime, considerable trouble is experienced with red water in dead ends, which is objectionable to domestic consumers. Since Norwalk is a highly industrial community, nothing may be done to the water which will lower its quality as a boiler feed or processing water. Experiments are under way to find a supplementary treatment suitable to both types of consumers.

The new 5 mgd filtration plant built in 1937 supplies the city of Norwalk, 60 per cent of East Norwalk, and other outlying districts along the supply line in New Canaan. South Norwalk, which was united with Norwalk in 1913, is still supplied from the slow sand filtration plant which it built in 1908.

The factors entering into the selection of the site for the new rapid sand filtration plant for the city of Norwalk are interesting. Property owned by the District was available for the plant at Grupe Reservoir, but this location required low-lift pumping. At only one section along the transmission

*The Attractive Façade of the Head House*

main could a gravity filtration plant be installed without appreciable reduction in main capacity or excessive lowering of pressures in the distribution system. The location, however, is in a section devoted to large estates and subject to zoning restrictions. The one piece of property available for the plant was unfavorable for the purpose, for it lay on a steep side hill and its width was limited.

Careful economic studies showed clearly that the savings resulting from the elimination of low-lift pumping equipment and annual pumping costs more than offset the cost of the land and the additional construction costs. The new plant is interesting in its completeness and flexibility of treatment, the compact arrangement and centralization of control. All gage and meter equipment, except that for the individual filter units, is on one master panel, and practically all operations can be controlled from within the building.

### Impounded Supply

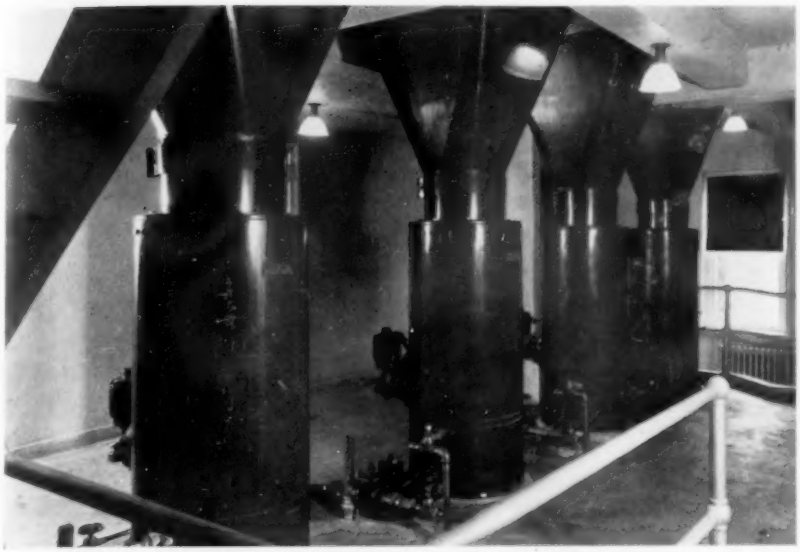
The water for the Norwalk supply is impounded in Scotts and Brown Reservoirs above the Grupe Reservoir, from which water flows to the filtration plant. At this latter reservoir, two Wallace & Tiernan automatically controlled chlorinators are installed to apply approximately 10 pounds of chlorine per million gallons, since there are a number of consumers on the lines between the reservoir and the filtration plant.

Two cast iron supply lines, one a 16-inch and the other a 20-inch line, lead from the reservoir to the plant in New Canaan. Where the lines leave the public highway, they are combined into a 24-inch cast iron line through the property to the plant. The aerators can be by-passed entirely by the 24-inch line. An 18- and a 24-inch riser are taken off the 24-inch main to feed the aerators.

### Aeration

The aerator nozzles are supplied by an outer and an inner ring of

*The Aerators and Side of the Head House at the Norwalk Water-Treatment Plant in New Canaan, Conn.*



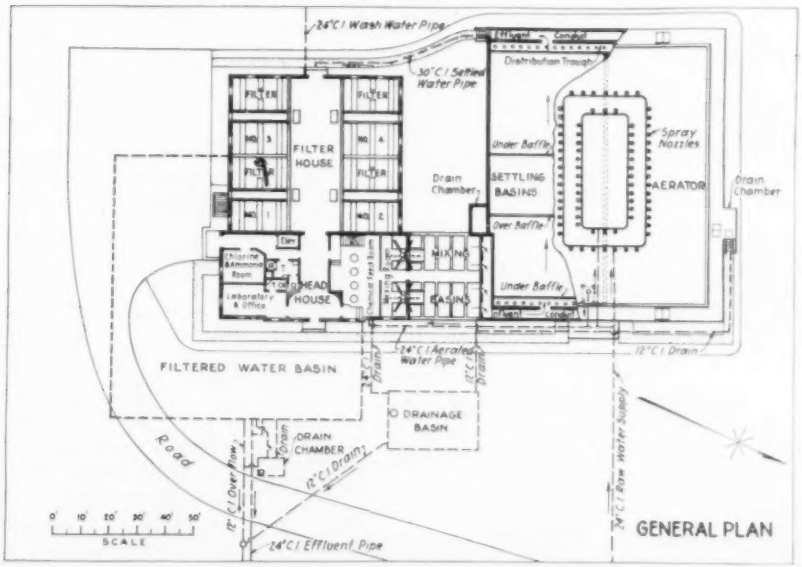
*The Battery of Chemical Dry Feed Machines*

mesh screen. When the plant was first started, the vortex in the bell mouth was so great that air was sucked through, causing a bad fluctuation in the meters and some trouble in the filters. The vortex has been successfully damped by a wood plate inserted in the bell mouth to break up the whirl.

A low weir about 6 inches high and 6 inches wide, and extending to within 5 feet of the sides of the basin at a distance of about 12 feet from the east end, causes the water to flow toward the corners and thus create circulation in the corners, doing away with any stagnant areas.

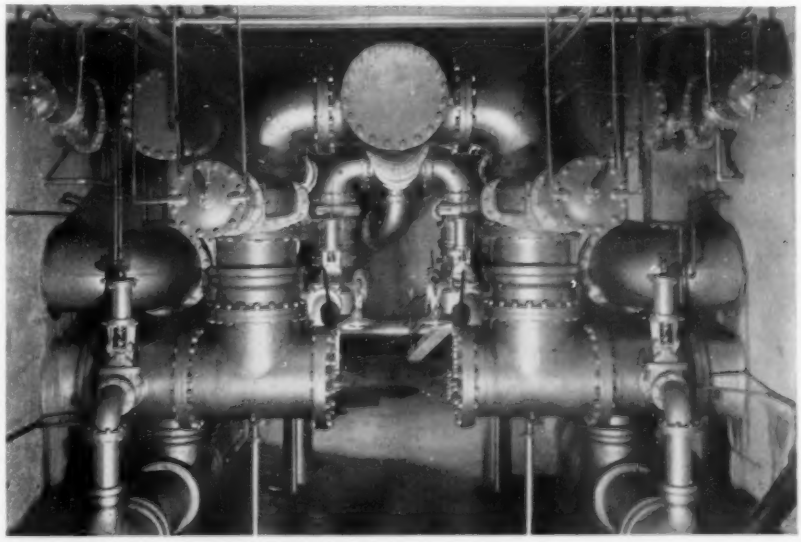
## Chemical Treatment

From the aeration basin the water flows through a 24-inch cast




pipes. The 12- and 10-inch rings are gradually reduced to a 6-inch line at the end of the two rings. There is a total of 76 Binks 1½-inch aerator nozzles so arranged that the outer ring delivers 3.6 mgd and the inner ring 2.4 mgd. About one-half of the nozzles are used in the fall, winter and spring, and all of them in the summer.

The water in the aeration basin varies from zero to 6 inches deep. It flows toward the east end of the basin, where a 24-inch down pipe with a bell mouth collects the water for delivery to the plant for chemical treatment. In order to prevent any foreign material which might fall into the aeration basin from reaching the plant, the down pipe is surrounded by panels of ¼-inch



*The Pipe Gallery with Hydraulic Valves and Rate-of-Flow-Controllers*

from main to the basement of the head house, where it is metered by a Builder's Iron Foundry 24 x 11-inch venturi meter. Here it is dosed with 30 ppm of alum in summer down to 15 ppm in winter, an average of about 20 ppm. Nuchar activated carbon has been used since August, 1937, to stabilize the sludge of the settling basin and for removal of taste and odor. About 1 ppm activated carbon was used when the treatment was first started, but during the winter months satisfactory results were produced with about half this amount. The chemicals are applied by Wallace & Tiernan chemical dry feeders, one for the alum, one for the carbon, one for the post lime treatment, and one spare. The piping is so arranged that the machines may be used to apply the materials at different locations as desired.

Chemicals are hauled to the plant by truck and then delivered at ground level, where they are hauled by hand trucks to a Robinson-Branin vertical chain conveyor which handles four bags a minute, raising them to the top storage floor. The bags are slid from the hand truck onto three arms in the conveyor well, and four arms on the conveyor itself pick up the bag, raise it to the top elevation, and then, as the arms are tilted in going over the top idlers, the bags are slid off onto a warehouse truck and conveyed to storage.

The dry chemicals are mixed with water and applied as a split dose to the water as it is divided into two mixing chambers equipped with three pairs of paddles each on a vertical shaft so set to give an updraft when they are rotated by a Universal Gear Co. motor. The water then passes under and over three sets of baffles, taking 30 minutes to flow through the rapid-mix basin and the baffled channel at 5 mgd flow. It then goes through a concrete flume to the settling basin located beneath the aeration basin, where it stays for 4 hours at 5 mgd, flowing through the basin, which is divided into two sections by a center wall, and continuing over and under a series of baffle walls.

An interesting feature of the settling basin design is that the first third of each basin is underdrained by 6-inch tile lines made up of 6 x 4-inch tees with the 4-inch hub set flush with the floor and provided with tile plugs having 1-inch orifices. The use of this system for periodic flushing reduces the necessity for periodic emptying of the basins for cleaning.

## Filtration

The water leaves the settling basin at the back through a 30-inch cast iron line leading to the pipe gallery in the basement of the head house. Here, the flow is divided into two 20-inch lines, one running down each side of the pipe gallery to serve the two 1⅓ mgd rapid sand filters located on each side of the central gallery.

The filters are divided from front to back by the central flume or gutter, from which three concrete wash-water troughs lead to the far sides of the filters. The troughs are built with the top edges 30 inches above the top of the 30-inch sand bed, which overlies 18 inches of graded gravel. The underdrain system is composed of half-round sections of 6-inch cast iron pipe with 1-inch holes bored along the top on 6-inch centers and set ½-inch off the floor on small plates, giving a horizontal orifice along the floor of the filter. Examination of the gravel has shown that it is scoured clean by means of this elongated orifice.

The filters are equipped with Builder's Iron Foundry rate-of-flow controllers and gages and loss-of-head gages, and with Roberts filter tables for control of the filter washing and waste. Wash water for back-washing the filters is pumped from the clear well to a basin on the hill above the plant and then used by gravity flow for washing the filters, with a 24-inch rise per minute. The waste water from washing flows to a 55,000-gallon equalizing basin below the plant, which drains into a 12-inch cement and wrought-iron line 4 miles long to the river at Norwalk. The nearest stream into which the waste water might be discharged flows through many high-grade local estates where its channel and banks are landscaped, so use was made of the abandoned water line, although of small diameter and necessitating the construction of the equalizing basin to permit free discharge from the filters when washing.

## Post-Treatment

A 750,000-gallon clear well located under the head house receives the water from the filters. From the well the water flows by gravity to Norwalk.

An average of 8 ppm of lime is added at the influent line to the clear well, where also about 2 pounds per million gallons of chlorine is added by one of the two Wallace & Tiernan vacuum type chlorinators. The chlorine flow is checked by weighing the cylinders regularly on a Fairbanks platform scale. Ammonia is also added at ratios varying from 1:3 to 1:8, with an average ratio of 1:6. The influent line to the clear well is a 20-inch tile line which extends diagonally across a walled narrow section of the clear well, so that the water must flow back the full length of the clear well, through a 20-inch sluice-gate and then the full length of the wider section before it enters the 24-inch line, which divides into 20- and 16-inch cast iron lines leading from the clear well to Norwalk.

The new rapid sand filtration plant of the Norwalk First Taxing District, located on Valley Road, New Canaan, was designed by Nicholas S. Hill Associates, consulting engineers, New York City, as Connecticut PWA Project 1210-D in 1937. It is operated by John E. Riordan, Supt., with three operators on 8-hour shifts.

### Functional Distribution of City Employees

**In a recent publication, "Municipal Employment—A Functional Distribution for January and April, 1940," the Bureau of Census, Department of Commerce, reports that of an estimated 643,000 non-school employees of cities having populations over 10,000—70 per cent of the total municipal employees in the country—only 57,000 are engaged in activities associated with general administration, legislation, or the courts. The largest number—181,000 employees—perform duties connected with protection to person and property, divided about equally between police and fire protection. The next most important function of city government, by this measure, is public works, including street construction and maintenance, sanitation and waste removal. The percentage of employees engaged for each principal municipal function in these cities is: protection, 28.2%; health, hospital, and charities, 14.8%; public service enterprises 13.9%; highways 10.6%; sanitation and waste removal 9.8%; general administrative, legislative and judicial 8.9%; and other 13.8%.**

# Carrying the Families of Cleveland

THE Cleveland Railway Company served notice a year ago that it intended to provide the city and environs with a new standard of service. As with several transit systems in the recent past, and numerous others of the present, the operation of an aged and miscellaneous collection of unpopular vehicles could not, and can not, go on indefinitely and did not, and does not, bring in sufficient revenues or other satisfactions to fit the modern American business system.

A hundred thousand local experts might diagnose the disease. The company itself was well capable of doing that. The diagnosis, however, must be accompanied by a curative treatment which would insure the recovered system a life of self-support and even a hope of a cosy rainy day.

Although the company has been unable to reach a satisfactory settlement with the city of Cleveland on a franchise renewal, John A. Beeler of the Beeler Organization, New York, was summoned. His recommendations that were applied in Seattle, Atlanta, Houston, Boston and Washington have made those cities notable for good local transportation. Study of the Cleveland system convinced him that better service could be provided at less cost, and about a year ago he wrote this prescription:

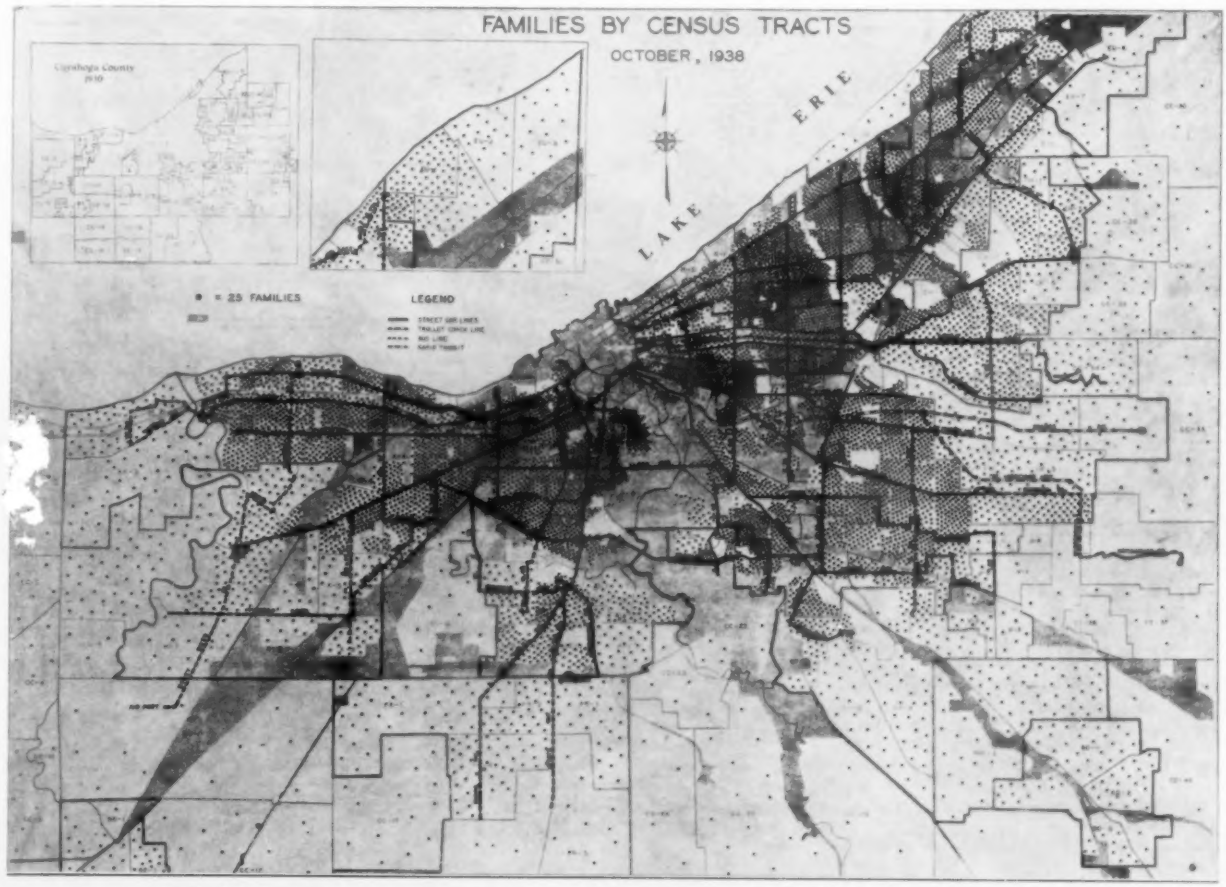
1. Use of a different type of vehicle
2. One-man operation
3. Changes in routing
4. More efficient operation

## The Past

First let us see what Mr. Beeler saw those wintry days a year ago in Cleveland.

Of the mileage operated by the company, 74 per cent was by street cars (including 7 per cent trailer-car mileage) providing 81 per cent of the rides. Of the twenty-four street-car lines, three failed to take in sufficient revenues to pay operating expenses and taxes, and two others could not pay depreciation charges. All these lines in 1938 collected $11,610,905 and paid out $9,500,254 for operation and $1,289,623 for depreciation, leaving $821,028 for return on investment.

Two per cent of the mileage is given by trolley coaches providing 2¾ per cent of the rides. This line




*Each dot represents a family and the heavy lines are those of the Cleveland Railway Company*

collected $408,055 and paid $214,876 for operation and $30,890 for depreciation, leaving $162,289, or 40 per cent of the revenue for return on investment.

Twenty-four per cent of the system mileage was motor-coach service, furnishing 16¼ per cent of the rides. Of the twenty-three lines, fourteen did not have receipts sufficient to pay operating expenses and taxes, and only six had a balance after depreciation. The entire group failed by $125,234 to pay operation, taxes and depreciation, not to mention interest.

The trolley coaches had replaced street cars on one of the most lucrative lines; but they collected 30 per cent more money than the street cars had collected. The public preference for (1) new vehicles and (2) trolley coaches is clear.

The company owned 372 miles of single track, 4½ miles of trolley-coach route, and 108 miles of motor-coach route. It also owned:

775 street cars
28 two-car trains
207 trailer cars
28 trolley coaches
261 motor coaches

Of the active street cars, 29 were more than 25 years old; 285 were 20-25 years old; 175 were 15-20 years; 254 were less than 15 years old. Of the last group, 150 were purchased about ten years ago. Of the trailer cars, 25 were 26 years old and the others 15 to 22 years old. The trolley coaches averaged 3½ years, motor buses 2 years.

The riding public compares these older types of vehicles with modern streamlined equipment, and cries for better service.

The stockholders saw minus $25,668 available for a dividend requirement of $1,883,664.

### The Prescription

This was why the doctor was called—not to replace the existing system, but to rebuild it. He saw that in order to carry the customers there must be 1,180 vehicles: 800 with a seating capacity of 55-60 passengers, 160 seating 38-44, and 220 seating 25-32. During the last four years the company had purchased 28 trolley coaches and 230 motor coaches and 12 buses. He further prescribed that "provision be made for purchase in the near future of some 121 new vehicles seating 55 to 60 passengers each." In addition he recommended 128 new large-capacity units be purchased within the next five years to replace cars now between 20 and 25 years of age.

This rather liberal period of convalescence was suggested not merely because of the cost of the treatment, but in order to permit a considered decision on what that 55-60 passenger vehicle ought to be. The modern street car is available, seating 40 per cent more passengers than the 40-passenger trolley coach. But here and there city officials will recall certain pictures in the November, 1938, issue of THE AMERICAN CITY, showing a street-car-size articulated vehicle good either as trolley coach or diesel-electric bus, blazing a path of transit history—which, by the way, has now entered into the planning of the great New York City Board of Transportation. This trolley bus is likely to be much better known before 1945. Consequently the Beeler prescription read: "It seems desirable to proceed slowly with the purchase of new street cars. . . . it will take some time to modernize completely the property, and when the program progresses to the point where street cars are to be replaced with large units, the management will have further knowledge of the trends in riding and development of the large-capacity trackless vehicle to guide it in deciding whether to purchase street cars or large trackless vehicles of like capacity."

## How Will Real Estate Values and Rents Be Affected by the National Defense Program?

A CAREFULLY considered attempt to answer this question was the subject of an address by Homer Hoyt, author of "One Hundred Years of Land Values in Chicago" and of other studies of land economics, on October 8, 1940. Speaking before the Manhattan Chapter of the National Association of Real Estate Boards, Dr. Hoyt said in part:

In no field of human activity is prediction more difficult than in the case of this war and the problems of national defense. . . . In the first World War, real estate was first held down during the war period and for several years thereafter, and then there was a wild boom unparalleled in the history of the United States. Instead of repeating this pattern, I venture to say that the reverse may be true. That is, we may first have a mild real estate upturn in the centers of defense activity, followed by a real estate depression.

What is the situation now? First, what are the prospects for increased activity in real estate within the next year? A mild recovery in building has been in progress for the past seven years. The volume of new construction activity in the United States has mounted slowly upward year by year. During this year, with approximately 500,000 new dwelling units expected by the end of December, new building will reach or slightly exceed one-half of the peak figures of 1926. Vacancies have tended to decline from an estimated 7.6 per cent as a broad national average in 1934, to approximately 2 per cent today, with vacancies of 5 per cent to 8 per cent in apartments. Residential rents, according to the National Industrial Conference Board, have recovered half of their decline from the peak of the Twenties, but have sagged slightly since 1937. In view of our declining rate of urban growth, which for the decade of 1930 to 1940 was less than half that of the previous decade, we may have reached as high a point in the current cycle as we are likely to go without the added impetus of war contracts.

The defense program itself is in its infancy. When the full effect of all the appropriations is felt, the present volume of employment in defense industries will probably increase 20 or 30 times. . . . In direct war industries, wages have increased 30 per cent, and this indicates that more money will be available for rents in defense centers.

The net effect of defense activity may be to enhance rents and real estate values, chiefly in the defense centers, but its effect can easily be exaggerated. Rents tend to move up only after profits and wages have risen. Rent control is the first thing to be thought of in the event of war by those who are now seeking liberal Federal subsidies for housing.

Even in the event of wild inflation, the values of real estate would not rise unless the net income increases. If rents are held down while operating expenses in the form of wages, fuel, etc., are allowed to rise unchecked, the value of real estate is squeezed out between an upper and a lower millstone. Hence, the outlook for real estate is only mildly favorable even in the short run.

There are basic underlying reasons, war or no war, why urban growth and the rate of increase in urban land values is due to slacken. The war itself is a conflict between industrial, or, in other words, urban civilizations, and there is a limit to the extent to which urbanism can be carried.

As markets are being closed to us by force and as our own balance between the city and the country is now topheavy in favor of the city, the further growth of our cities will be slow, even if a decline does not soon set in. Hence, a long-run outlook is not rosy for increases in urban real estate values compared to the other elements of our national wealth.

*For Adequate National Defense and Individual Satisfaction*

# Re-Creation for All Citizens

A NATION is as strong as its people. In the United States, some 80,000,000 people live in cities, towns and villages. The other 50,000,000 are chiefly farmers who for diversion and supplies come to the towns and cities: they presumably get, in the country, the fresh air, exercise, balanced diet, they need for their more or less rugged life. Of those strengthening factors, the vast numbers of the town dwellers get an inadequate supply.

Exercise, as everyone knows who gives it a thought, consists of infinitely more than calisthenics—with which very few people will have anything to do unless compelled by law or persuaded by community interest in the subject. Such community interest is found in Germany, Italy and Japan— the so-called dynamic nations. It is found to a vanishing degree in England, France, and the United States. England has cricket, America baseball and football, Spain bull-fights —spectacles for the masses to look and howl at but not to participate in, like the circuses and gladiatorial combats of declining Rome.

The United States has waked up —the first step to getting up. The third step is to do our morning exercises.

A basic service which the city governments must perform in the national defense program is to encourage the widespread use of community gymnasiums, bowling alleys, playing fields of all kinds, playgrounds, wading pools, swimming pools and showers. What this country needs is 5,000 Re-Creational Centers with the accent on sweat.

The municipal governments are the natural imitators, organizers and conductors of this work toward universal exercise, thus providing a wider distribution of more health and strengthening our citizens for national defense. Adequate national defense is the objective and formal reward; but this reward will be made up of millions of individual rewards of better health won by millions of citizens of all ages and both sexes.

PHOTOGRAPH BY COURTESY OF
FRED MEDART MANUFACTURING CO.

## Money?

There is no stinting about money when it comes to battleships, airplanes, tanks, guns and shells. There must be none when it comes to developing a citizenry capable of operating these engines to the limit of efficiency. Only a strong and vital citizenry can *work* the ships, the planes and the tanks—or *pay* for them.

If many billions of dollars are not too high a price for the machines of aggressive defense, is a small fraction of that amount too much to pay for aggressive defenders? Actually, for less than one per cent of the cost of the machines, a nation-wide system of municipal re-creational centers can be established or enlarged in a comparatively short time.

The first requisite is the vision of its necessity. The second requisite is the will to make this vision evident to all the people. The third requisite is to call in those who know how to provide what is needed. The manufacturers of gymnasium apparatus, sport equipment, swimming-pool equipment, playground devices, should be placed on the same essential plane as the metals industries.

A good start would be to work and root for a simultaneous Recreational Show to be held next February in several large cities, such as New York, Chicago, Atlanta, Kansas City, San Francisco, for the display of equipment already available, of physical-culture systems already operating in some cities, or projected and suggested systems, needed and possible and coming facilities.

The cities should find no more difficulty in providing the moderate amount needed than the Federal Government will find in providing the billions. In fact, the people themselves, once they understand the universal individual values of the plan, are likely to demand that it be carried out and, where necessary, pay for it by popular subscription.

The weakness heretofore in most recreational programs has been their skimpiness, their inadequacy to serve the entire community. To gather popular support, they must be city-wide. Indeed, if the only result of the entire national defense agitation is the permanent development of universal participation in community recreation and individual re-creation, the United States Defense Program will be a success. This is the job of the cities.

How soon are the cities going to tackle it? Is there any possible objection? Is there something else more important? What is your city doing to provide attractive exercise of body and spirit? This magazine invites your comments, ideas and plans.

# New Sewage-Treatment Plants for Springfield, Mass.

## *Indian Orchard Sewage-Treatment Plant Described in Detail*

*By* Alfred A. Burger
Havens & Emerson,
Successors to
Gascoigne & Associates
Cleveland, Ohio

*(Continued from the October issue)*

The Indian Orchard sewage-treatment works is located on city-owned property on the south side of the Chicopee River between Worcester Street and the Chicopee River. The site contains approximately nine acres and is ample for future extensions.

Sewage to be treated at this works will be relatively fresh and will consist of equal amounts of sanitary sewage and industrial wastes. From analyses, it is estimated that the sewage as received at the works will contain an average of 0.225-pound of suspended solids per capita per day, 70 per cent of which are volatile, and will have a 5-day biochemical oxygen demand of 0.165-pound per capita per day.

The population equivalent connected to the works as of 1955 is estimated at 20,000, and the average sewage flow at 3 million gallons daily. The maximum flow to be treated is 5 million gallons daily. The sewage flow will be delivered to the works through a 36-inch concrete sewer, by gravity. An emergency overflow is provided, which permits discharge of excessive flows direct to the river.

The sewage is first passed through two stationary hand-raked bar racks, each 4 feet wide and having clear openings of 1 inch. Screenings will be fed manually through Rex Triturator grinders and will drop back to the sewage to be settled out in the settling tanks. After passing through the bar racks, the sewage is diverted to either a dry-weather flow channel or to one or both of two grit chambers by manually operated gates. The grit chambers are designed for flows of 0.8 to 2.5 million gallons daily each, with velocities of from about 0.5 to 1 foot per second and a detention period of about 50 seconds. The moisture from the grit will be drained to a sump, and grit will be removed by hand. Grit is to be used as fill about the plant.

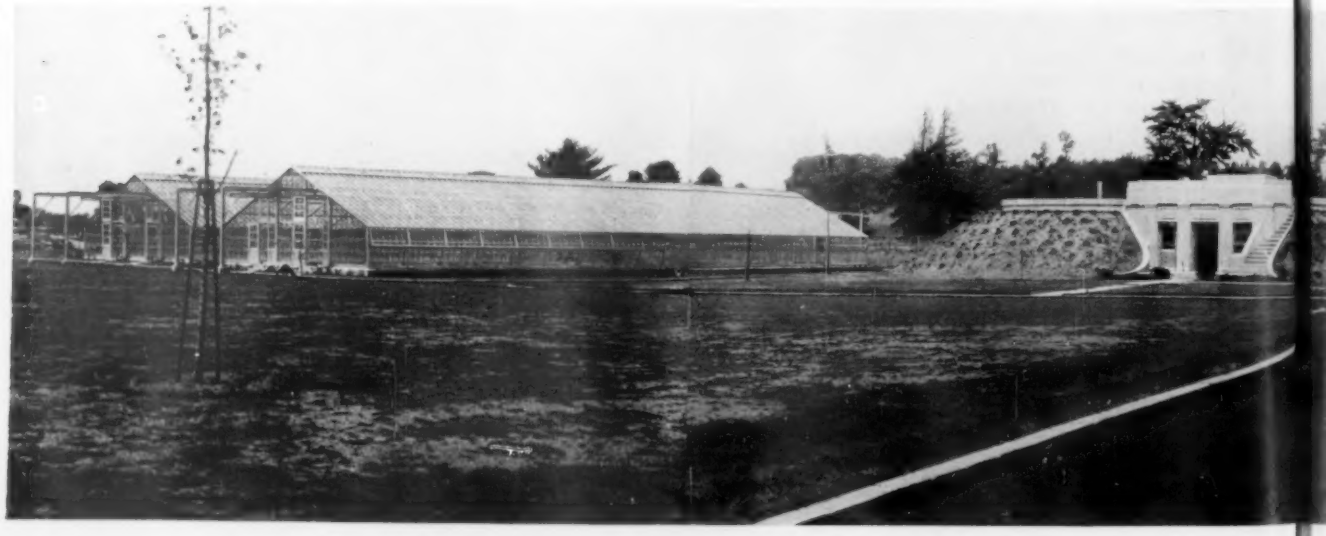
From the grit chambers the sewage is passed through a Builders Iron Foundry venturi meter, which is fitted with indicating, totalizing and recording devices located in the service building, and thence to two settling tanks. Each tank is 16 feet wide, 88 feet long, and has a water depth of 12 feet and 2 feet of freeboard with a water capacity of 125,000 gallons, to provide a detention period of two hours when the flow is 3 million gallons daily. The flows to the tank units will be controlled by gates.

Sludge will be collected and deposited in a sump on one end of each tank unit by means of Jeffrey mechanical sludge collectors of the conveyor type. The collectors will also act as grease skimmers. Grease and scum will be hand-raked into a trough near the outlet end, and will be flushed to the sludge sump, where it will be mixed with the sludge. Sludge will be removed from the tanks hydraulically.

The effluent from the settling tanks is next discharged through a 24-inch cast iron outfall pipe, extending about 80 feet into the river and terminating in an upturned ell.

### Digesters

Raw sludge and skimmings from the settling tanks will be pumped



from the sludge sump by a Chicago Scru-feed pump to either of two digesters. The digestion tanks are each 31 feet in diameter, and have a water depth of 19 feet, plus a hopper 6 feet in depth. Also, a freeboard of 2 feet has been provided. The total active capacity provided by the two tanks is 27,000 cubic feet, which is equivalent to 1.35 cubic feet per person. Each tank is fitted with a PFT fabricated steel floating cover and gas collection devices.

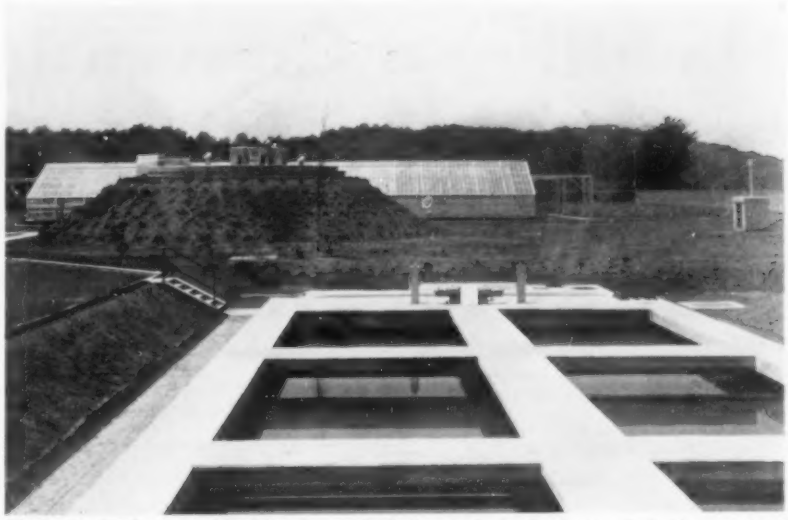
Raw sludge is introduced into the tanks through either of two inlets. Supernatant may be withdrawn from any one of four positions, and will be returned to the settling tanks. Digested sludge will normally be withdrawn by gravity to covered sludge drying beds.

Heating coils around the periphery of the tanks will serve to maintain an operation temperature of about 86 degrees F.

Arrangement of piping is such that stage digestion can occur. A Fairbanks-Morse pump has been provided for intertank transfer of sludge, as is required in stage digestion. This pump will also serve to empty the digestion tanks when required.

## Sludge Drying Beds

The drying beds have American-Moniger glass covers of regular greenhouse construction, and consist of two units, each 35 feet wide by 150 feet long, providing a drying area of 10,500 square feet. It is expected that these will handle 15 doses, applied to a depth of 10 inches, each year. The drying beds are fitted with ventilators embodying the latest developments.



*Close-up of Digester with Glass-Covered Sludge Beds in Background, Indian Orchard Sewage-Treatment Plant, Springfield, Mass.*

Filtering material is composed of 12 inches of coarse sand over 2 inches of pea gravel, which is drained by tile laid longitudinally in the bed. Underdrainage will be discharged with the plant effluent.

Each sludge drying house is subdivided by thin concrete partition walls into four beds. Dried sludge will be removed by forks to an overhead monorail system extending to a loading platform at one end of the houses. The sludge cake, which is expected to amount to about 2 cubic yards per million gallons of sewage treated, will be conveyed to the loading platform in litter carriers and dumped into trucks for final disposal as fill or other use.

Gas from the digesters will be used in a U. S. Radiator Co. Capitol boiler for heating the circulating water for the digester coils and for building heating. For makeup and standby purposes, a U. S. Radiator Co. boiler with a Johnson oil burner has been provided. The boiler equipment and other accessories are located in the basement of the service building. Gas in excess of the requirements for heating purposes will be burned in a PFT waste burner.

The service building, which is 35 x 45 feet in plan, and is one story high, contains an office, laboratory, tools storage and meter recorder. The heating boilers are located in the basement of this building.

# Handling a Convention Beyond Hotel Capacity

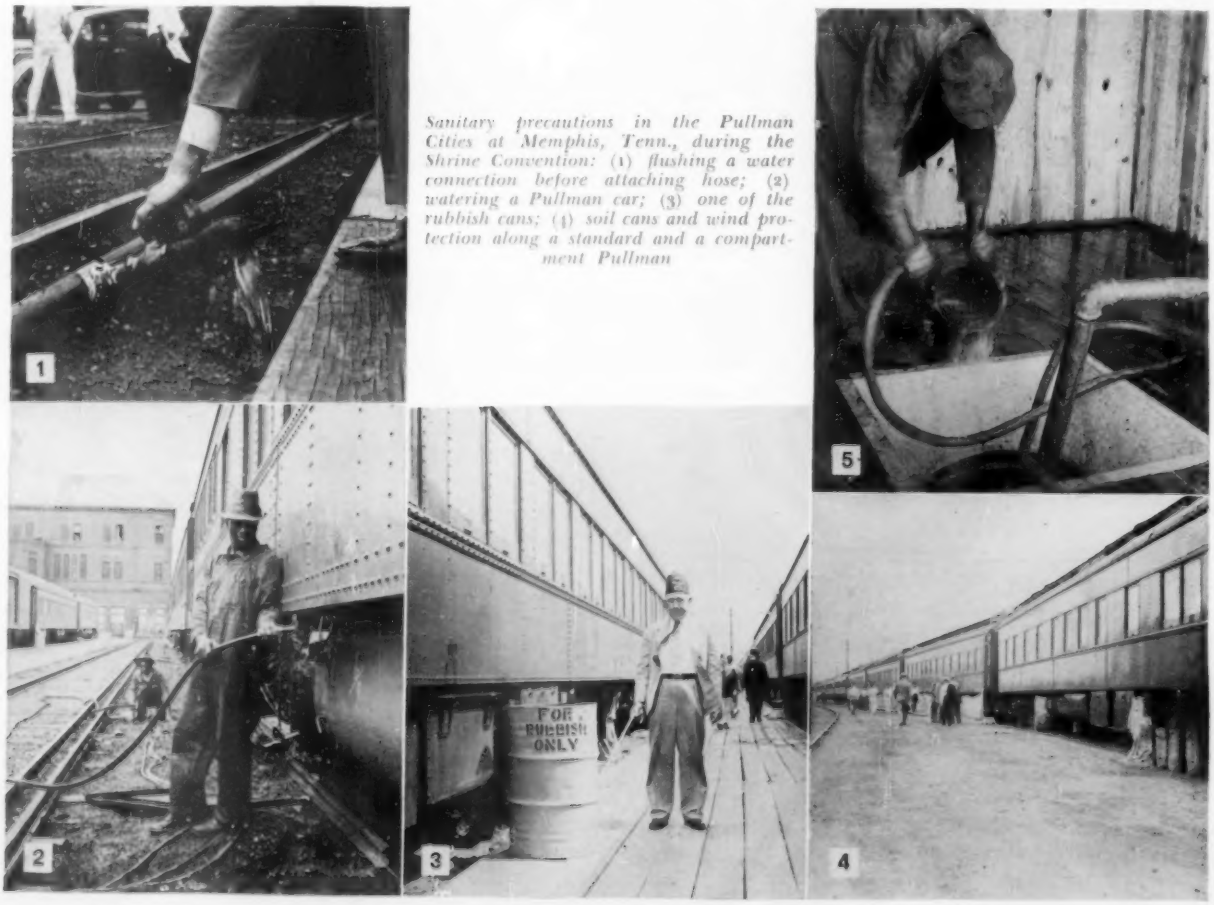
## *Sanitary Arrangements at Memphis, Tenn., for 25,000 Shriners Housed in Pullmans and Schools*

*By* JOHN E. BREWER
Junior Engineer,
Memphis Department of Health

THE Shrine Convention, with an attendance of approximately 25,000, was held in Memphis, Tenn., during June, 1940. The Memphis Health Department, in an effort to do its part in preventing any conditions which would expose its visitors and citizens to possible disease transmission, agreed with the local committee that one person would represent the Shrine in charge of all sanitation, and that the Department of Health should be familiar with all the arrangements so as to be able to offer the best type of cooperation. Inasmuch as these temporary communities, or small cities in the railroad yards and in the schools, were to be set up for just a few days, careful consideration was given to being reasonable in any sanitary requirement. It seemed wise to make changes on paper, as less expensive than to change the plans later because of necessary Health Department regulations.

### Sleeping-Car Sanitation

Most of the railroads whose Pullman cars were used for housing convention delegates had had experience in caring for the problems confronting them during the three-day convention. Three separate freight yards, or terminals, were used for storing the Pullmans. Prior to the convention each railroad submitted plans and specifications to the Health Department showing the methods of handling the parked Pullmans. Because of the experience of the railroads, there were few changes in the plans and these were all made before actual construction began. Several days before the arrival of the trains, health officials made an inspection




*Sanitary precautions in the Pullman Cities at Memphis, Tenn., during the Shrine Convention: (1) flushing a water connection before attaching hose; (2) watering a Pullman car; (3) one of the rubbish cans; (4) soil cans and wind protection along a standard and a compartment Pullman*

of the parking areas, and the plans for handling and servicing the cars during the convention were reviewed. When the trains began to arrive, there was no evidence of a shortage of man-power in any of the Pullman Cities. The only deficiency that occurred during the three-day convention was the failure of a definite arrangement and schedule for the collection of garbage and trash which had been agreed upon by the railroad and the city garbage collection service. The emergency was corrected in a short time. The icing of Pullmans offered a problem to ice handlers, for roadways were not always available between tracks.

*The Shelby County Mobile Unit Used as a First Aid Station*

## Maintenance Crews

Designating the temporary Pullman Cities as A, B and C, City B used the largest maintenance crew, with a yard foreman in charge of facilities for 61 cars. The crew was already trained for its assignments, being brought to Memphis especially for this work.

The following data show the organization at Pullman City B, for handling the 61 cars:

First Shift (7 A.M.—3 P.M.)
- 1 superintendent of work
- 1 foreman
- 3 pipe fitters
- 1 leadworker
- 43 laborers
- 1 chief electrician
- 2 electricians

Second Shift (3 P.M.—11 P.M.)
- 2 electricians
- 1 leadworker
- 13 laborers

Third Shift (11 P.M.—7 A.M.)
- 1 electrician
- 1 leadworker
- 7 laborers

This organization functioned over a period of 6 days completing plans for maintaining Pullman City B and razing it. In figures the labor expense per Pullman car, over the three-day period, was $3.43 per car per day.

Although City B was the largest, it did not have as elaborate an organization as City A, where 28 cars were involved, with the organization listed below:

First Shift (7 A.M.—3 P.M.)
- 1 superintendent of work
- 1 foreman
- 2 electricians
- 2 electricians (helpers)
- 1 plumber
- 1 plumber (helper)
- 9 laborers
- 1 truck driver

Second Shift (3 P.M.—11 P.M.)
- 1 foreman
- 2 electricians
- 2 electricians (helpers)
- 9 laborers
- 1 truck driver

Third Shift (11 P.M.—7 A.M.)
- 1 foreman
- 1 electrician
- 1 electrician (helper)
- 6 laborers

The maintenance expense in City A, over the 6-day period, was $6.32 per car per day. The difference in the cost of maintenance between City A and City B was due in part to the fact that City A had only about one-third as many cars.

In order to facilitate communications, each railroad had a personal telephone located at a specially designated point. One railroad added a public address system, which speeded up contacts among employees who at times could not be found easily. The location of these communication points was known to the Health Department.

The crews were organized so that no crew performed more than one assignment. For example, no handler of ice handled soil cans.

## Water Supply

The interest of the Health Department in the water supply was mainly that of protecting the hose and nozzle against contamination during use, for the public water supply was used in each of the Pullman Cities. The hose joints were not allowed to drag in pools of water, and the nozzle was fully protected by metal cylinders when not in use. All watering connections were flushed thoroughly before use.

The distribution system was laid out so that hydrants were located at convenient intervals throughout the yards, with a maximum interval of 60 feet between hydrants, and in every case the outlet was extended at least 16 inches above the ground.

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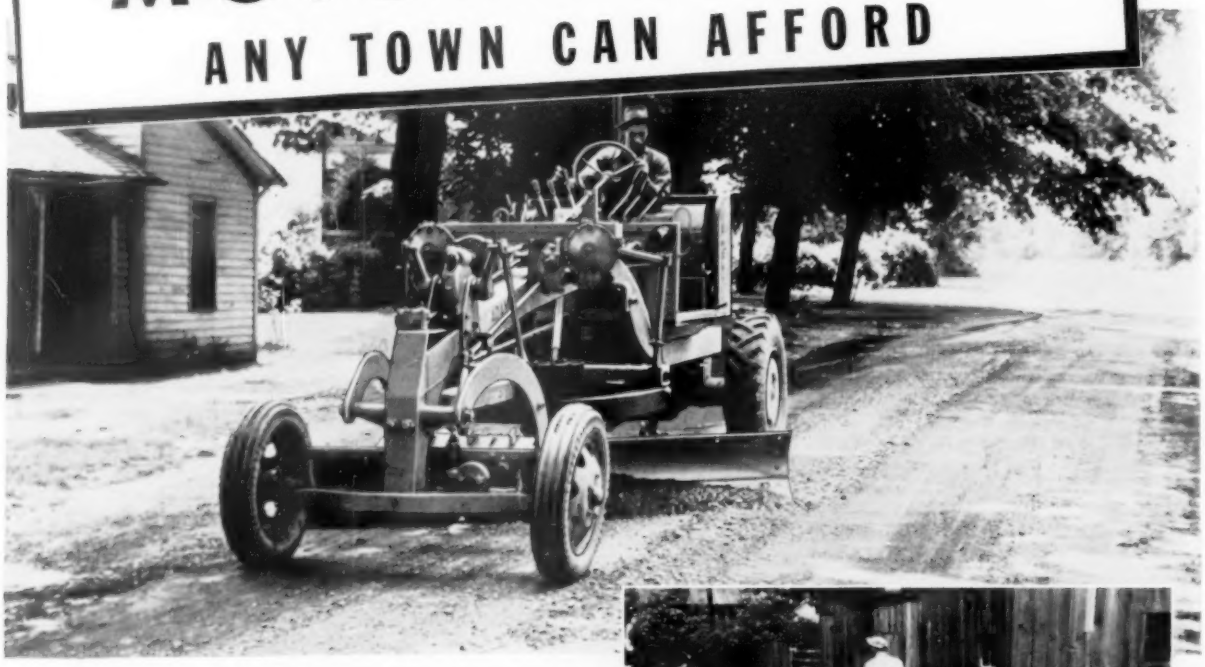

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During November we hope you will remember to mention THE AMERICAN CITY.

Each hydrant outlet was turned down from the horizontal. One city used steam hose couplings for connecting the filling hose to the hydrants, while the other two used a regular ¾-inch hose connection.

Accommodations for shower facilities were adequate, and in one location quite elaborate. Every shower room had shower heads in ample number, toilets and footbaths. An attendant was on hand all hours of the day. Separate toilet and water facilities for porters and other help employed on the cars was provided.

Contracts were awarded to local ice dealers for icing the Pullman cars and diners. This simplified the icing of the cars, since the dealers had had much experience in this work.

## Garbage and Rubbish

Garbage and rubbish were collected in 30-gallon cans with open tops located at convenient intervals between the rows of cars and along the walkways, usually every third car. In some instances painted oil and gasoline drums with metal covers were used as garbage cans for dining-car service.

All garbage and rubbish was carried to a central collection point, and a definite arrangement and schedule for collection was agreed upon by the railroads and the city garbage collection service. At this point all collections were kept covered by lids or tarpaulin.

## Sewers and Sewage

As there was a possibility of trash, including paper, bottles and other rubbish, being mixed with excreta from the Pullman cars, two railroads screened the sewage hoppers with 12-mesh galvanized iron wire in order to prevent clogging and to insure continuous discharge of sewage. The other railroad did not find this necessary since it discharged directly to a 5-foot storm sewer. The screens were cleaned regularly and the waste material deposited in a large drum. Because of the prevailing winds, a protective covering was used between the toilet outlet and the sanitary can as a secondary precaution by one of the railroads. Where there were compartment Pullmans, this burlap protective covering was run the entire length of the car.

All sanitary equipment, such as soil cans and garbage cans, was thoroughly washed and disinfected before re-use. At no time did the servicing of cars, in this manner, become a problem. The washing and disinfecting was performed in an enclosed building erected over a manhole. The building was screened to keep out flies, and ample washing facilities were available, with the faucet and hose connections so installed as to prevent submergence. No definite time schedule for emptying and replacing the soil cans was set, for the turnover was continuous and well ahead of heaviest demands. If car trucks became soiled with excreta, they were immediately sprayed with disinfectant, and all accumulations were picked up and carried away.

As the time for departure of the trains arrived, the soil cans were not removed until five minutes before departure. At this time every man available was used to strip the train of whatever was attached to the cars, and as soon as the train had left, immediate steps were taken to disinfect the premises of all waste material not already found. Galvanized cans of approximately 16 inches diameter and 24 inches long were best suited to handle and facilitate the collection of sewage from the toilet outlets.

The disposal of waste water was a continual operation, just as was the disposal of excreta. Each group collected all waste water in large cans and emptied it into the city sewer. It was agreed prior to the arrival of the trains that, if the demand for disposal of waste water was greater than could be handled by the collection cans, all water other than that from toilets and bars could be emptied onto the ground, if the soil was of an absorbing type.

## School Sanitation

As a large number of Shriners were housed in schools, the Health Department checked each school that was to be used, to insure that there was adequate pressure at each individual plumbing fixture in order to prevent any back-siphonage. The Division of Housing and Malaria, within the two-weeks period prior to the convention, inspected the area surrounding each school within a radius of ½-mile three times, and all mosquito breeding places that could not be destroyed by hand were sprayed by oiling crews. The result was successful, with the exception of an occasional complaint about flies.

## Food and Milk

The Chairman of the Shrine Convention Committee on Concessions discussed the question of food permits with the Health Department. No permit was issued by the Department to any person unless he complied with Health Department regulations governing food and foodstuffs.

Two large temporary structures were erected on vacant lots and operated as restaurants. The conditions under which food was prepared and protected, washing and sterilization of eating utensils and glassware used for serving beverages, and the use of three compartment sinks with chlorine disinfectant, were supervised by the Health Department. Permission to sell sandwiches was issued only to those who wrapped sandwiches in approved kitchens.

Where the Shriners were housed in schools, cafeterias were reopened with the same personnel that served food during school time. Their familiarity with food handling reduced the possibility of disease transmission.

## First Aid

In addition to a number of ambulances available along the line of the parade, the Shelby County Health Mobile Unit was used purely as a first aid unit, with one doctor and two nurses in charge continuously at congested points where large groups of people gathered. This unit is equipped with all modern clinical equipment to furnish immediate first aid to the injured. It served its purpose well, for several emergencies occurred necessitating its use.

—The photographs included in this article were made by M. F. Carter of the Memphis Health Department.

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Why not remember to mention THE AMERICAN CITY?

# City Legislators Asked to Build Up Local Fire Defenses

*By* SELDEN R. ALLEN
Fire Chief, Brookline, Mass.

THE International Association of Fire Chiefs, meeting in Spokane, Wash., August 5-8, unanimously characterized the municipal fire defenses, including the signaling system, as woefully inadequate. A search for evidence to prove or disprove this sweeping charge reveals that during the 21 years (1919-1939 inclusive) which have elapsed since the last great war, fire in the United States of America, has destroyed, in physical values alone, $8,567,746,812, an annual average of $407,987,943; and according to the conservative estimates of the insurance interests these figures should be more than doubled to include the intangible values destroyed as a consequence of fire. Also, during this period in which the country was at peace, some 200,000 human lives were destroyed and several additional hundreds of thousands of people seriously injured by fire.

Now consider these huge losses of life and property in the light of the fact that a single hose stream will extinguish nearly every fire with nominal loss if the fire department is quickly brought into action, and we cannot escape the conclusion that alarms are not promptly given and that the signaling systems are inadequate. The fire record gives no evidence of delay after the alarms have reached the fire department.

There is, moreover, ample evidence to support this conclusion. The records of your own fire department will afford plenty. Men who have devoted years to the study of municipal fire protection have repeatedly asserted it. The engineering reports of the National Board of Fire Underwriters on all cities of 20,000 population and over, most of which are equipped with signaling systems, sustain it. And if it is true of cities already equipped with more or less adequate signaling systems, is it not true of the several thousand smaller cities throughout the country without any form of fire-alarm signaling system? The fire records of many cities which have installed adequate signaling systems show reduced fire losses in comparison with which the cost of fire-alarm systems is insignificant.

**WHEREAS, the strengthening of the line of defense against fires is so vitally important; and**

**It is a well-known fact that the existing man-power, fire-fighting equipment and signaling systems of the Fire Departments of the country are woefully inadequate, and**

**It is essential that steps be taken to bring these services up to full strength to meet any emergency;**

**BE IT RESOLVED, that this organization (International Association of Fire Chiefs) go on record strongly urging the adoption of the necessary means to put into immediate effect the building-up of all Fire Departments, and**

**That a copy of these resolutions be sent to municipal officials responsible for providing funds and carrying on these measures.**

*—Gist of resolution adopted by I. A. F. C.*

Analysis of the fire defenses of the country as a whole shows conclusively that the financial provision for signaling systems has not in the past been more than 25 per cent of the amount necessary to bring this vital element into a balanced relationship with the other tangible fire defenses. And if we subscribe to the principle that a balanced relationship of the defenses is essential to maximum efficiency, then until the weakest link in the chain of municipal fire defenses is brought into a proper state of efficiency, the value of the fire-extinguishing agencies will continue to be impaired in the same degree that the signaling system is neglected.

All municipalities have water-supply systems and fire departments, and many of them, having added the signaling system, appear willing to believe that their fire defenses are complete. The *adequacy* of these defenses is given scant consideration. The Underwriters, who grade the fire defenses for insurance rate-making purposes have this to say relative to adequacy:

> The desired features of accessibility, reliability, and promptness, can only be obtained in their highest form by the installation of a modern fire-alarm telegraph system. In general it is considered that a box should be plainly visible from the main entrance of any building in congested districts. In mercantile or manufacturing districts it should not be necessary to traverse more than one block nor more than 300 feet to reach a box; in closely-built residential districts this distance should not exceed one block or 500 feet; and in other residential districts this distance should not exceed three blocks or 1,000 feet along or toward the main artery of travel.

A check of your signaling systems with the standards thus established is a simple matter, and it will be a wise precaution.

A fire-alarm signaling system with boxes adequately distributed and conspicuously located, and with circuits providing for continuity of service even though accidentally or maliciously broken, and a police-signaling system which provides for an adequate patrol of the fire district and for the swift and secret dissemination of intelligence, will immeasurably strengthen the fire defenses of your community and correspondingly increase the efficiency of the fire-extinguishing agencies already established.

These statements are merely a recital of facts taken from the records. The problem may be briefly expressed: If the fire waste of the nation during 21 years of peace has been 20 billion dollars and 200,000 human lives, what is likely to be the cost if the loss will be accelerated by a hard-hitting enemy?

EDITORIAL NOTE.—This question cannot be answered by a slide rule. It must be answered by action, in time enough, to a degree which provides a modern fire-alarm system and modern fire apparatus sufficient to protect your town against any disaster. In an early issue, THE AMERICAN CITY will present this entire subject for the action of municipal officials.

## "IN THE WINDY CITY"

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# Improved Financial Basis Proposed for Canadian Municipalities

*By* H. Bronson Cowan
Peterborough, Ontario

RECOMMENDATIONS contained in the report of the Royal Commission on Dominion-Provincial Relations, as submitted recently to the Dominion Parliament in Ottawa, have brought a hope of better times to come to hundreds of Canadian municipalities. The large urban centers stand to benefit the most, should Parliament approve of the recommendations of the Commission.

The principal recommendations of the Commission are:

### Unemployment Relief

1. That municipalities should be relieved of bearing the costs of unemployment relief. It is proposed that these costs should be assumed by the Dominion Government. On this point the Commission states: "By unemployment relief we mean relief or aid for unemployed employables as distinct from unemployables."

### Poor Relief and Health Services

2. That, if certain classes of needy persons are excluded from Dominion relief schemes, provision for the care of such persons should automatically become a responsibility of the provinces. On this point the Commission stated:

"Although poor relief and medical aid are properly provincial functions, and although they may ordinarily be best administered by local or municipal authorities, the complete fiscal burdens of medical aid and poor relief within the area cannot be fairly imposed on every municipal authority. Fiscal justice demands that the burden imposed on the inhabitants of an area should not be out of proportion to the wealth and taxing powers of the area. Yet, this would be the case if, in a large metropolitan area, two suburban municipalities were separately incorporated, one containing low-, the other high-, income groups. Our financial recommendations, if adopted, should make it possible for the provinces to bear a greater portion of the load of poor relief and medical services than in the past. In any event there is a strong case for the equalization of the costs of these services as between municipalities in the same province."

### Taxation of Crown Property

3. That Crown (governmental) property used for normal commercial purposes should be subject to municipal taxation on the same basis as that of private enterprise. It is suggested that the senior governments make ex gratia payments in lieu of taxation depending upon the nature of the property and the extent to which it benefits from municipal services.

### Financial Readjustments

4. That the Dominion should pay annually a National Adjustment Grant to certain provinces in order "to enable each province (including its municipalities) without resort to heavier taxation than the Canadian average, to provide adequate social, educational and developmental services."

The plan of financial readjustment recommended by the Commission involves the assumption by the Dominion of the whole burden of relief for the employable unemployed and their dependents, and the assumption of the whole of the provincial (not municipal) debts. In return, the provinces would withdraw from certain fields of taxation and surrender all existing subsidies.

### Grave Municipal Situation

The report of the Commission recognizes that the financial position of Canadian municipalities is an integral part of provincial finances and, to that extent, of Dominion-provincial relations. On this point the report states:

"Democracy begins with local government. Local government cannot be politically healthy and stimulating unless the problems set to those who conduct it are possible of solution. The essence of financial responsibility lies in the possibility of balanced budgets which permit of farsighted planning, and this condition has been in grave peril in Canadian municipalities during the last decade."

### Important Municipal Benefits

Should Parliament approve of the recommendations of the Commission and carry them into effect, the financial benefits derived by the municipalities, particularly in the large urban centers, will be far-reaching. It is estimated that, on the basis of statistics for 1937, the adoption of this financial plan would effect a net saving of some $20,000,000 in municipal expenditures. The principal saving would flow from the assumption of relief costs by the Dominion. An important advantage of the plan, in the opinion of the Commission, is that: "Provincial and municipal governments will be put in a financial position which will make it unnecessary for them to resort to sales taxes and other nuisance or extraordinary levies."

Power to tax government-owned property will be of great assistance to many cities. For example, in the city of Esquimalt, B. C., the taxable value of land is $1,192,520, the taxable value of improvements $1,577,420, and the value of land and improvements exempt from taxation $9,155,190. This situation is due largely to enormous holdings of government property in this municipality, and more particularly to the construction of a large governmental drydock. At the other end of Canada, in the city of Moncton, N. B., the assessed value of taxable real estate is $16,334,000, while the assessed value of federal government exemptions is $9,000,000.

Most municipalities have located within their boundaries government buildings exempt from taxation. Municipalities have long claimed that government-owned lands used for revenue-producing purposes should pay local taxation. The Royal Commission has endorsed the justice of this contention.

### A Subject of Debate

The recommendations of the Commission, before they can be carried into effect, will have to have the approval of the federal and provincial governments. During the next year, therefore, they will be the subject of widespread debate. On the whole, these recommendations have been receiving favorable comment on the part of the press throughout Canada. Whatever the final outcome may be, Canadian municipalities expect that readjustments will be made which will enable them to reduce their expenditures and finance their operations on a sounder and better basis than has been possible during recent years.

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# Modern Town Meeting Enlists Citizen Interest in Community Planning

*By* HARRY HOSKING
President, New Jersey Federation of Official Planning Boards, Livingston, N. J.

IF the citizen is to take part in public life today, there must be devised some means of reviving the spirit of the old town meeting, which has crumbled and fallen before the onslaught of the complexities of public life today. There must be some means by which the wants and desires of the citizen can be brought to light for study and community discussion in an orderly manner.

In the beginning folks were neighbors. They knew one another, their problems and their difficulties. They acted as neighbors to help each other. Today, except in our small communities, we have lost much of that quality of neighborliness. Something must be done to kindle a greater community spirit, a greater desire to help one another.

More and more citizens are interesting themselves in civic organizations of various types. One big gap is the lack of means of tying together all that is done by civic groups, so that a coordinated effort can be made and that no longer can a feeling of political expediency combine to defeat the work that should be done. In the growth of the community-planning movement we may find the answer to our problem. Even now we find progressive planning units banding together group and civic organizations to work out in a new and modern town-meeting style the problems of the present communities.

## A Citizens' Planning Federation

The Planning Board of the township of Livingston, N. J., has developed a Citizens' Planning Federation composed of residents of that township who are interested in making the community a better place in which to live. The membership is purely voluntary and is open to everyone. The Citizens' Planning Federation has but one purpose—to pass on to the generations which follow a better community than that which was handed down to the citizens of today. All citizens from time to time, and some citizens all the time, have ideas concerning the community, and it is the purpose of the Livingston Planning Board to encourage such ideas through the Citizens' Planning Federation. Those who signify their desire to cooperate with the Planning Board are assigned to standing or special committees or advisable work.

The six citizen members of the Livingston Planning Board are organized along functional lines for maximum efficiency. One serves as Chairman and one as Secretary; the other four are assigned to Subdivisions, Zoning, Streets and Highways, and Master Plan, respectively. Each of these members has citizen committees of the Citizens' Planning Federation to assist him in his work. In addition, other committees carry on special investigations under the direction of Planning Board members. Examples of some of the special work are: (1) survey of town-owned land for possible future civic use; (2) study of municipal finances and costs; (3) development of a system of natural brook parkways to secure flood control and natural recreational areas; (4) premature subdivisions.

Organizations of all types in Livingston—civic, fraternal and other—are invited to cooperate in this work. Besides the unofficial groups there are the official agencies in the community. One of the primary functions of the Planning Board and its Citizens' Federation is to be of assistance to the governing body. A special attempt is made by the Planning Board to keep in touch with the plans and wishes of the official and unofficial groups in the community, so that the plans of the future, developed by the Planning Board, will, in fact, be a coordinated and cooperative view of everyone willing to take part. The Board of Education, Recreation Commission, Safety Council, Board of Assessors, etc., have each assigned one of their members to work with this group in a coordinating capacity.

One of the most important contributions of the Citizens' Planning Federation has been the encouraging and the sponsoring of neighborhood civic organizations. Associations of this type—and the number is increasing rapidly—establish a direct contact between the officials of the community and the citizens themselves. A mimeographed bulletin entitled the *Livingston Planner*, and patterned after the *New Jersey Planner* of the New Jersey Federation of Official Planning Boards, is issued by the Planning Board as a further means of maintaining relationship between these neighborhood units and the officials and other groups in the community. These neighborhood units will eventually become the nuclei about which will be built the community neighborhoods of the future.

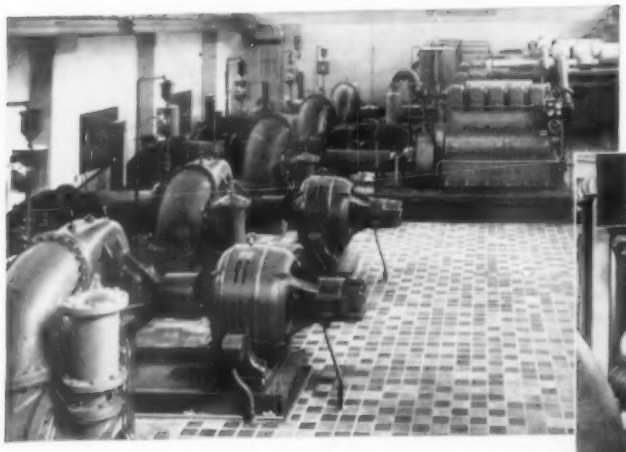
The information assembled by the Citizens' Planning Federation is retained in a special file. Every year the data are reviewed and all information of interesting and historic nature is preserved in a special place for the future. The material thus set aside will stand as a record of united cooperation and community benefit and will show in original form those who took part and how those who took part were identified with the movement.

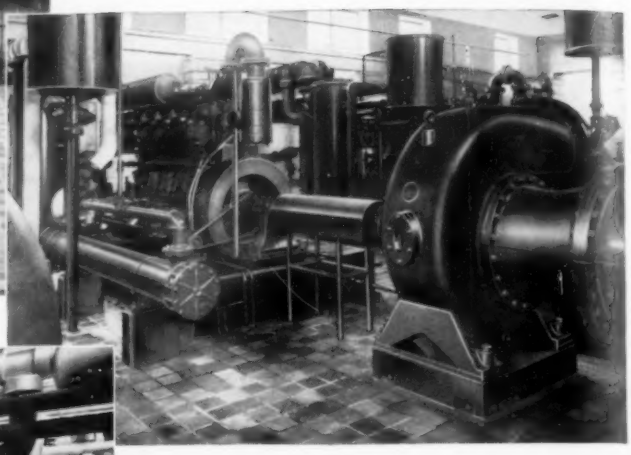
## Significance of the Movement

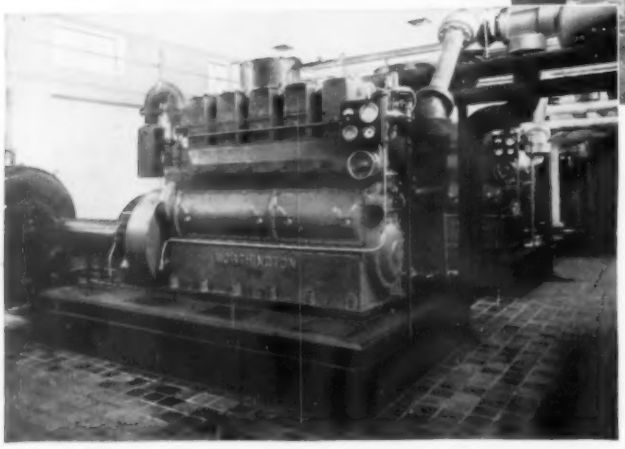
The planning group becomes a coordinating agency responsible for translating the information obtained into recommendations to the governing body which that body in its executive capacity can effect into law. The Planning Board itself, through the responsibilities laid down by law, can help to accomplish some of these ends. Thus, the work of the people can be made effective.

It is realized that under the plan which has been drawn up, it is necessary for everyone concerned to spend a certain amount of time on actual work and to accomplish certain responsibilities. Those who are identified with the program have a trust of deep significance, and the success of the citizen movement depends in large measure on their interest and enthusiasm. Coordination of effort must be achieved if maximum results are to be obtained.

Just as soon as the American people recreate the fundamentals of the American Way and the principles of individual rights and responsibilities, just so soon will this country be again the democracy we know we must have. These are the things for which the fathers and the sons of the fathers of this country pledged and gave their very lives and fortunes.







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# Portland's Municipal Shop

(*Continued from page 58, October issue*)

The Municipal Shop performs the repair and maintenance work (except greasing and servicing) of the automotive fleet, which consists of passenger cars (all makes), motor trucks, fire apparatus, street flushers, gasoline and diesel tractors, motor graders and patrols, steam and gas rollers, power lawnmowers, etc. The shop also performs the maintenance and repair work upon the three fire-boats operated by the city, makes repairs and parts for fire hydrants and fire hose, manufactures and repairs all fire-alarm telegraph boxes and much of the related equipment as well as the wooden ladders used by the Fire Department, and constructs many special cabinets. In addition, the shop makes the required patterns in connection with the foregoing. Because of the diversity of equipment constructed and repaired by the shop, it is diffcult to specialize operations and mechanics other than to divide them into general trade groups. However, as far as practicable, all work is classified and detailed to mechanics either specializing in, or best fitted for, the particular type of operation. Certain mechanics are well fitted for work upon heavy equipment—tractors, rollers, etc., and prefer it. Such men are kept on this type of repairs, while others, who are more efficient on light car work, are so assigned. Volume is such that this works out very satisfactorily.

## Automotive Repair Section and Machine Shop

The automotive repair section covers an area 50 x 200 feet, with an additional area 30 x 40 feet, used for brake repairs and testing. Here is performed the maintenance on the 400-odd pieces of city-owned automotive equipment. This work consists of general motor repairs, replacement and reconditioning, chassis and fender work, brake relining and related work, also the construction of street flushers and miscellaneous pump and power units. When required, the auto foreman calls on other shop divisions for blacksmithing, welding, machine, or carpentry work. At present, cylinder re-boring and crankshaft grinding, owing to the small volume required, are farmed out, which is also true of auto glass, radiator, and upholstery work. A tow truck with wrecking equipment is maintained and is available in emergencies, road failures, or breakdowns.

The machine shop, which is comparable to any outside contract shop, performs all types of bench and machine tool work. It is equipped with lathes, both screw-cutting and brake-drum, radial drills, planers, grinders, and other power tools. This division is charged with the shop maintenance and rebuilding of the 7,000 or more fire hydrants in the city, as well as all general machine shop work required by the several departments, including the reconditioning of air guns, compressors, and steam pumps. Here, too, are manufactured street flusher valves and nozzles as well as the many special parts and fittings of the Fire Department. A well-equipped tool room for general use is an adjunct of the machine shop.

## Electrical Instrument Division

The electrical instrument department is equipped for all small machine tool requirements. Here are manufactured and maintained the fire-alarm telegraph boxes, gongs, and punches, as well as much of the special equipment used in the central alarm system. Many small parts are also manufactured for miscellaneous signal systems. This department also acts as the experimental laboratory for the fire-alarm telegraph department and has been instrumental in the designing and developing of much of the city's equipment of this nature.

## Other Shops

While blacksmith shops, as we once knew them, are rapidly fading from the picture, we find that this division of our organization is still very important. Here, too, a large variety of work is being performed. Road and street maintenance tools, scarifier teeth, picks, and gads are re-shaped and sharpened; forgings are made when required by the machine shop for special jobs; iron work forged for wooden bodies; iron and steel parts made for ladder construction; frame and axle straightening and such work is also performed. The blacksmith shop is equipped with forges, a power hammer and grinders, and for both arc and acetylene welding.

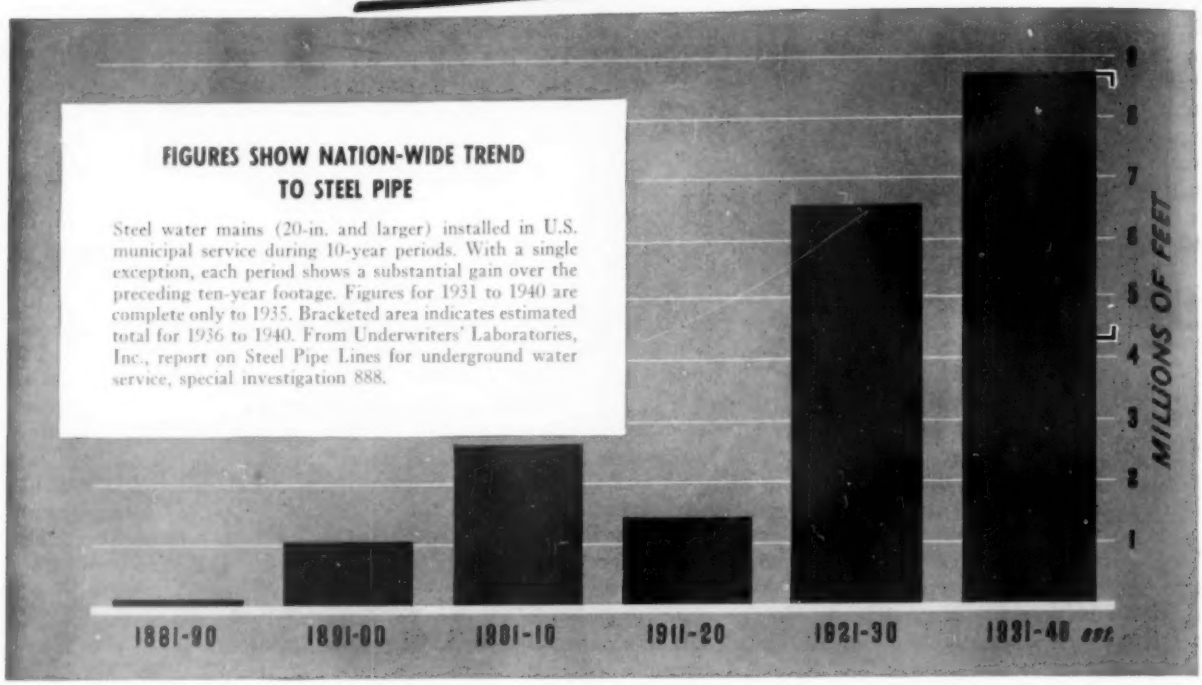
The carpenter shop or woodworking department could easily be designated the "ladder shop," for here are manufactured from clear Oregon fir and spruce the ladders used by the Portland Fire Department. The clear ladder stock is obtained from local mills and is stored rough-finished in the ladder loft and permitted to air-dry for from three to five years. It is then re-sawed and dressed to stock sizes and stored in stock racks until required. Proper moisture content is thereby under full control. However, besides ladder making, this department is required to build anything of wood construction, from special cabinet work and pattern making to the more common carpentry jobs.

The paint shop is a fireproofed room convenient in every detail, including a fireproof compartment for storing stocks of lacquer, synthetic enamels, paints, and oils. Both spray and brush methods of application are used. This department is called upon to refinish fire apparatus, complete with gold leaf and lettering; paint dump-trucks; refinish passenger cars and touch up spots on bodies and fenders. A qualified sign painter is employed who performs this work, and also furniture and cabinet finishing.

## Savings Effected

By operating the central maintenance and repair bureau, the city of Portland has found many advantages, among which are the following: Much duplication of supervision and repair equipment is avoided; better means of comparisons between vehicles and types of vehicles are afforded; more specialists and fewer jacks-of-all-trades can be employed; and a good check is made possible upon the efficiency of the several servicing crews when such work is performed by the operating bureaus.

# 234 Prominent Cities using *Steel* Water Mains


FIGURES SHOW NATION-WIDE TREND TO STEEL PIPE
Steel water mains (20-in. and larger) installed in U.S. municipal service during 10-year periods. With a single exception, each period shows a substantial gain over the preceding ten-year footage. Figures for 1931 to 1940 are complete only to 1935. Bracketed area indicates estimated total for 1936 to 1940. From Underwriters' Laboratories, Inc., report on Steel Pipe Lines for underground water service, special investigation 888.
MILLIONS OF FEET
1881-90
1891-00
1901-10
1911-20
1921-30
1931-40 est.

FROM Maine to California, from the Lakes to the Gulf, American cities are turning to steel pipe as the safe, economical material for water mains. Listed in a recent report of the Underwriters' Laboratories, Inc., are 234 cities in the United States which are using this pipe. And this report includes only mains 20-in. and larger, installed *before* 1936—a total of over 16,200,000 feet of steel pipe!

Here is proof that municipal water engineers are recognizing, more and more, the advantages of steel pipe—its high strength which prevents sudden, costly failures—its light weight and easy-laying qualities—its ability to serve dependably for long periods of years.

National Tube Company, always a leading factor in the development and manufacture of steel pipe for water mains, stands ready to serve you in the planning and laying of adequate water service facilities. For assurance of long-term satisfaction, specify NATIONAL Steel Pipe. Write today for complete engineering data.

## *Greatest Service at Lowest Cost . . . with STEEL Water Mains*

**1. HIGH STRENGTH.** Withstands high pressures, heavy trench loads, vibrations, shocks, washouts, water hammer and other emergency stresses.

**2. LONG LENGTHS.** Fewer joints per mile, faster laying, less leakage, less damage to pavement, lower water loss.

**3. LIGHT WEIGHT.** Saves freight and trucking charges. Speeds laying.

**4. SHATTERPROOF.** Eliminates sudden ruptures, as in case of fire or other emergencies. Reduces property damage.

**5. SMOOTH SURFACE.** Ideal for dips or coatings, where necessary. Greater carrying capacity.

**6. LONG SERVICE.** Sixty-year old installations still in service.

# NATIONAL TUBE COMPANY

PITTSBURGH, PA.

Columbia Steel Company, San Francisco, *Pacific Coast Distributors* • United States Steel Export Company, New York

UNITED STATES STEEL

# A Program for Municipal Preparedness

TO THE end that American communities may "demonstrate that the efficiency and vitality of democracy can be measured by town and city government no less than by vast national programs," the November *Survey Graphic*, in an article by Alden Stevens, entitled "Our Towns Face New Tasks," offers a series of suggestions for practical procedure. Explaining that these points "summarize the recommendations of the National Defense Advisory Commission and of independent public administration specialists, except that endorsement by the Commission of specific organizations mentioned here should not be inferred," the article recommends, first, the securing of expert advice, and mentions the *National Municipal Review* and THE AMERICAN CITY as sources of information.

1.

"If you need advice on how to prepare your town for emergency," the author continues, "ask your state defense council or one of the many other organizations working on local government defense problems. Don't rush into unplanned action. Better not do anything unless you are sure of what you are doing." Other recommendations follow:

2.

*Make your town government efficient.*—Weed out worthless elements and declare a moratorium on machine politics. If your town can tighten up its purchasing and contracting, eliminate waste, squeeze out unnecessary offices and combine others, it will be much better able to meet what may come. Citizens should work for installation of a merit system, a businesslike procurement department, a logical and workable tax structure, and the gradual elimination of burdensome debt. The National Municipal Association, 299 Broadway, New York, will advise citizen groups pulling for a city manager installation or other improvements. Now is the time to reorganize—if war *does* come, you may be too busy.

3.

*Make full use of your regular government machinery.*—Don't set up special commissions with executive power. All administrative experts agree that emergency groups with duties in any way paralleling those of established government departments work out badly. If special guards are needed to prevent sabotage, they should be under the police department. First aid and hospital facilities should be developed as a part of the town's regular health program. If training and use of volunteer help becomes necessary, make the regular department heads responsible, rather than setting up a separate corps of volunteers. Only in this way can duplication of functions and paralyzing confusion be avoided.

4.

*Work out a disaster plan.*—This is simply a blueprint for action in an emergency, and some forward-looking cities have had them for years, but right now there are extra-good reasons for working one out for every city. The nature of possible catastrophes is outlined and every policeman, fireman, and other city employee is given a particular job to do. When a tornado, or a flood, or a power-plant failure, or some other calamity strikes, each man knows just what is expected of him and where he belongs. There is a minimum of confusion and a maximum of quick, effective action. A thoroughly integrated plan of action may save thousands of lives and millions of dollars. City officials can get advice on such plans from the American Municipal Association, Chicago, and the American Red Cross. Usually the first move is to make a survey of the possibilities. Is the city in an earthquake zone? Is it subject to floods or tidal waves? Tornadoes? These and fires and epidemics call for prepared action as well as possible air raids or sabotage. In case of war what key men, if any, will go into the armed forces? Who will take their places? How much expansion of the police department will be necessary? Where can additional fire stations be established, and where is the money coming from? How many more firemen are going to be needed and where can they be found? Are there trained police and fire reserves? Is there any chance of interruption in the town's water supply? If so, can auxiliary water supplies be found and developed for emergency use? Above all, exactly what is the duty of each city employee in an emergency?

5.

*Cooperate with state and Federal agencies.*—Give wholehearted cooperation when requested; at other times, stick to your own business. Don't go out looking for headline-making jobs. Don't organize volunteer independent Fifth Column, spy, or alien hunts. That's Federal business and not local, as Attorney-General Robert H. Jackson explained to the Mayors' Conference in September. Counter-espionage is delicate work and calls for expert coordination: only the National Government can handle it properly. Home-guard units like those based on World War veteran organizations should be closely integrated with the national program. Such groups cannot be effective independently. Keep in touch with your state defense council and the Division of State and Local Cooperation of the National Defense Advisory Commission.

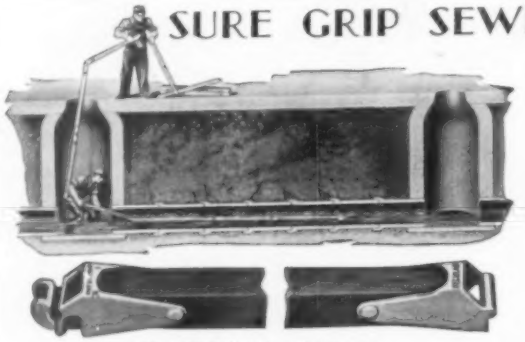
6.

*Form a local defense advisory committee—when it is called for.*—Such committees can do important work in harnessing the enthusiasm and ability of citizens where they can be integrated with the state councils and the broad national plan. A few have been formed already, some too hastily and without an adequate conception of what should be their function. They should be small or they are likely to be unmanageable and so worse than useless. They *must* be non-political—and the limelight is tempting to politicians. They should be advisory and not administrative, formulating and recommending lines of action, but leaving executive work to the regular officials. The attempt on the part of hastily formed committees to execute plans causes no end of confusion, and nothing is worse than a split authority when you are trying to get something done. A defense committee should assist and cooperate with the regularly constituted authorities, but should not be set up to take over any of their work. This point cannot be too strongly emphasized.

7.

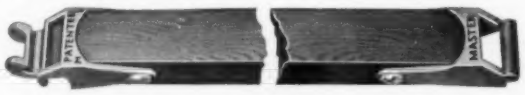
*Make sure your town can handle new defense industries before you get them in.*—Unless you have adequate housing facilities, schools, a smooth-working health service, strong police and fire departments, plenty of water, and a good welfare program, new industries may be more of a liability than an asset. Some experts in city government are trying to get the National Defense Advisory Commission to insist on checking all these items before a new defense industry goes into a town. But the townsfolk should check up on themselves—they are the ones who suffer from ill-advised projects. Self-analysis in the light of the present situation is a community responsibility.

## SURE GRIP SEWER RODS and ACCESSORIES



The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.




The MASTER, a heavy duty rod,
Fir stock 1½ x 1½ inch square.

*Write for catalog on complete line of sewer cleaning equipment.*

**EXPANDING SEWER MACHINE CO.**
NAPPANEE, IND.

# SIMPLEX
## RATE-OF-FLOW CONTROLLERS

***Offer the following advantages:***

1. Simplification of Piping Layout.
2. Reduction of Construction and Installation Costs.
3. Simplification of Maintenance Problems.
4. Reduction of Unrecoverable Head Loss Across Controller.
5. Flexibility of Installation.
6. Utilization of more of the Available Operating Head by Reducing Pipe Friction.

WRITE FOR BOOKLET

**SIMPLEX VALVE & METER COMPANY**
**6789 Upland Street Philadelphia, Pa.**

*Gauges, Air Valves and other Water Works Services.*
*Manufacturers of Meters and Controllers of the Venturi Type*

## WARREN 4"-16" Spun CENTRIFUGAL C. I. PIPE

The above picture was snapped showing the method of handling this superior pipe. *Write for our new catalog describing WARREN SPUN CENTRIFUGAL PIPE.* Warren has cast iron pipe in sizes 2 in. to 84 in. to meet your every need; *specializes in THREADED CAST IRON PIPE* for filtration systems, golf links, sprinkler systems, etc., sizes 1½ in. to 12 in. *and invites your inquiries.* Also has the finest of special castings, bell and spigot, flange, flexible joint, culvert, milled and plain end tubes, cylinders, flanged and bell spigot fittings, high-pressure fire service pipe and WARREN Short Body Specials.....
.....Write for catalogs.

**WARREN FOUNDRY AND PIPE CORP.**
11 Broadway, New York
**WARREN PIPE CO. OF MASS., INC.**
75 Federal St., Boston

THE *Empire Meter*

Famed for its accuracy on small as well as large flows; and equally well known for long, economical service.

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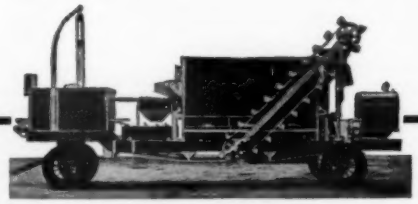
NATIONAL METER COMPANY • 4207 First Avenue • Brooklyn, N. Y.
BOSTON • CHICAGO • DALLAS • LOS ANGELES • SAN FRANCISCO



**STREET REPAIR TRUCKS**

**Portable Asphalt Plants—Dryers**
**Pug Mixers—Asphalt Kettles**
**Weed Burners—Torches**

*Write for Catalog*

Elkhart **White Mfg. Co.** Indiana

# Water Rates and Service Charges

## 1940 — Part XI

### *Covering Domestic and Industrial Meter Rates, Discounts and Penalties, Installation Charges, Fire Hydrant Rentals and Fire Sprinkler Costs*

### Cleveland, Tenn.

| | |
|---|---|
| Present population | 12,000 |
| Population served | 14,000 |
| Number of active services | 3,000 |
| " " meters | 3,000 |
| " " hydrants | 180 |
| Miles of water main | Unknown |

A uniform charge of 30c per 1,000 gals. is made for metered services for family use in Cleveland, Tenn. The meters in factories and other places where large quantities of water are used are read monthly and the following rates are applied:

| | |
|---|---|
| First 25,000 gals. or less, per 1,000 gals. | $ .25 |
| 25,000 gals. to 50,000 gals. per 1,000 gals. | .20 |
| 50,000 " " 150,000 " " " " | .15 |
| 150,000 " " 250,000 " " " " | .125 |
| 250,000 " and over " " " " | .10 |

Services where water is used in moderate quantity but excluding family use are read quarterly, and the family use rate of 30c per 1,000 gals. is applied for the first 25,000 gals., and then above that, the industrial rate applies.

The following charges are made as meter rental for those meters owned by the city.

| | |
|---|---|
| ⅝" and ¾" meters | $ .25 per month |
| 1" meters | .50 " " |
| 2" " | 1.00 " " |

A flat rate of $10 per year is charged for all services which are used for private fire protection.

EARL D. GILLILAND,
Superintendent, Water Department.

### Richmond, Ky.

| | |
|---|---|
| Present population | 7,500 |
| Population served | 7,500 |
| Number of active services | 1,700 |
| " " meters | 232 |
| " " hydrants | 132 |
| Miles of water main | 16 |

The meter rates in Richmond, Ky., are:

| | |
|---|---|
| First 5,000 cu. ft. | $ .27½ per 100 cu. ft. |
| Second 5,000 " " | .22 " " " " |
| All over 10,000 " " | .16½ " " " " |

A special rate of 16½c per 100 cu. ft. is made to manufacturers using 15,000 cu. ft. of water per quarter. The minimum charge per quarter per meter for all services is $1.85.

The Richmond Water & Gas Works charges for material and labor and cost when installing a water service.

Whenever any one of the rules and regulations of the company is violated, the water may be cut off from the building and is not again turned on except by order of the Board of Directors of the company, and after the payment of $1.00.

A charge of $45 each per year is made for public and private fire hydrants. The charges for sprinkler heads for private fire protection is $6.88 per quarter per service.

B. R. DOUGHERTY,
Superintendent, Richmond Water and Light Co., Inc.

### Santa Ana, Calif.

| | |
|---|---|
| Present population | 35,000 |
| Population served | 35,000 |
| Number of active services | 9,422 |
| " " meters | 9,422 |
| " " hydrants | 658 |
| Miles of water main | 117.85 |

A minimum base rate, stand-by or ready-to-serve charge is made in Santa Ana for each size of service connection as follows:

| | |
|---|---|
| ⅝" or ¾" service | $1.00 |
| 1" " | 1.25 |
| 1½" " | 2.50 |
| 2" " | 3.75 |
| 3" " | 5.00 |
| 4" " | 9.00 |

for 9,000 cu. ft.

In addition thereto the following water rates are charged for water actually used:

| | |
|---|---|
| First 4,000 cu. ft. | $ .125 per 100 cu. ft. |
| Next 21,000 " " | .08 " " " " |
| " 25,000 " " | .07 " " " " |
| All over 50,000 cu. ft. | .05 " " " " |

All water rates are due and payable at the office of the Water Department on the date they are rendered, and become delinquent 15 days after. If not paid before they become delinquent, a penalty of 10c is added. If the bill is still unpaid 20 days after being rendered, the water is shut off from the premises and remains shut off until all rates, fines and penalties have been paid. When the supply of water has been turned off for the violation of any ordinance, rule, regulation or requirement, governing consumers of water, it is not turned on again except upon payment of the amount due, together with the additional sum of $1.00 for turning on the water again.

All applications for water must be made on forms provided by the Department and must be signed by the applicant. All applicants other than real property holders must deposit with the Water Department the sum of $5.00 as a guarantee that all water bills, fines and penalties will be paid by the applicant unless the owner of the property signs a written guarantee for the payment of all water bills.

The city charges and collects in advance for each tap and service, the following charges:

| | |
|---|---|
| ⅝" service complete | $10.00 |
| 1" " " | 20.00 |
| 1½" " " | 35.00 |
| 2" " " | 50.00 |

For all larger sizes of service and all fire lines, actual costs of labor and materials used for service complete, plus 10% is charged.

All water meters and meter boxes installed by the Water Department remain the property of the Department, and where replacements, repairs or adjustments of any meter are rendered necessary by the act, negligence or carelessness of the consumer, any expense caused the Department is charged against and collected from the consumer. All charges for services and installations are doubled for services outside the city limits.

H. M. NEIGHBOUR,
Superintendent, Water Department.

### Lancaster, N. Y.

| | |
|---|---|
| Present population | 7,040 |
| Population served | 6,969 |
| Number of active services | 1,900 |
| " " meters | 1,900 |
| " " hydrants | 150 |
| Miles of water main | 22 |

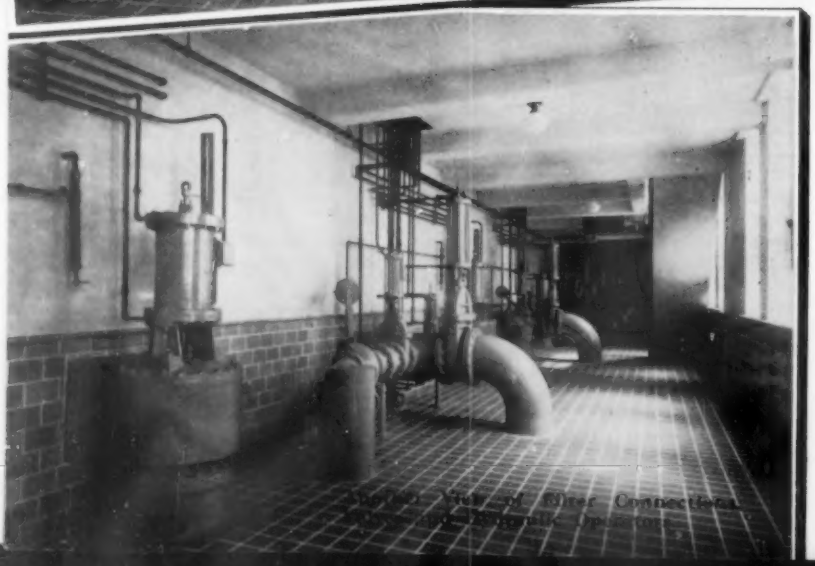
The domestic rate for metered water within village limits in Lancaster is 36c per 1,000 gals. with a discount of 10% if the bill is paid on or before the due date. Outside the village the rate is 80c per 1,000 gals., with the same discount. The commercial rate for industries and establishments employing less than 6 persons is 27½c per 1,000 gals., while the manufacturing or industrial rate for industries employing 6 or more persons is 22c per 1,000 gals. The commercial rate carries the 10% discount, but there is no discount on the manufacturing or industrial rate. Schools and churches pay 20c per 1,000 gals., with no discount.

The minimum bills for domestic service within the village are $3.50 for 6 months and also carry the discount. Outside the village the minimum bill is $5.00 and carries the discount. The minimum bills for commercial and manufacturing rates are $5.00 per month, with no discount on the minimum rate.

# Chapman Valves and Sluice Gates

Raleigh, North Carolina, Filter Plant,
William C. Olsen, Designing Engineer.

Interior View showing Pumps and Filter Connections
Chapman Valves and Operators



Interior View of Filter Connections
Chapman Valves and Operators

## For This Modern NEW FILTER PLAN Raleigh, No. Car.

The new Raleigh Filter Plant is desig and equipped to meet the highest mod standards of performance and efficie The quality and type of valve equipm selected for such a plant are import factors in maintaining these standa Among Chapman products installed in t fine plant are:

**Chapman Hydraulic Sluice Gates;**

**Iron Body Gate Valves, 6″, 10″ and hydraulically operated;**

**Tilting Disc Checks for low pressure pum**

**20″ Beamed Waterway Regulating G Valve;**

**Hydraulic Cylinders for operating Val and Sluice Gates.**

This standard Chapman equipment backed by the Chapman tradition of s vice and quality which for many years made Chapman products outstanding the waterworks and sewerage field.

**THE CHAPMAN VALV**
MANUFACTURING COMPANY
INDIAN ORCHARD, MASS.

There is no charge for fire hydrants nor for private sprinkler service, but a charge of $2.50 for each use is made by the city for sewer flushing.

H. J. HUBER,
Superintendent of Public Works.

## Paris, Ky.

| | |
|---|---|
| Present population | 6,210 |
| Population served | 6,900 |
| Number of active services | 1,614 |
| " " meters | 875 |
| " " hydrants | 138 |
| Miles of water main | 20 |

The minimum bill in Paris for water is $1.50 per quarter. The rates for water used are:

| | |
|---|---|
| First 3,000 gals. at | $ .50 |
| Next 3,000 " " | .40 |
| " 4,000 " " | .25 |
| " 5,000 " " | .20 |
| " 5,000 " " | .15 |

The charge for making taps for residence services is $10 for a ¾" tap and $20 for a 1" tap. The charge for larger taps is on a time and material basis. The same charge for time and materials is made for taps for sprinkling system installations.

The Municipal Light, Power and Water System charges the city $30 each per year for all fire hydrants installed on the distribution system for public fire fighting. The charge for services for sprinklers for private fire protection is $15 per quarter.

BOONE BALDWIN,
City Managing Agent.

## Coldwater, Mich.

| | |
|---|---|
| Present population | 7,991 |
| Population served | 7,991 |
| Number of active services | 2,530 |
| " " meters | 84 |
| " " hydrants | 196 |
| Miles of water main | 29 44 |

Flat rates are still in force for a majority of the consumers in Coldwater.

Metered water bills are payable monthly and are subject to a prompt payment discount of 10%. The water rates are:

| | | Per 1,000 Gals. |
|---|---|---|
| First | 10,000 gals. used per month | $ .10 |
| Next | 10,000 " " " " | .08 |
| All over | 20,000 " " " " | .06 |

The minimum charges are 75c per month for ⅝" and ¾" meters, $1.00 per month for 1" meters, $1.50 per month for 1¼" and 1½" meters, and $2.00 per month for 2" meters.

All water accounts remaining unpaid on the 20th of the month may be cut off for non-payment without notice. Where a payment is made against several accounts past due, credit is given to the oldest account outstanding.

The tapping fees, which must be paid by the consumer and which include the service pipe from the main to the sidewalk, are:

| For | Dirt St. | 18 Pav't or Black Top | Other Pavt. |
|---|---|---|---|
| 1 tap with ¾" pipe | $5 00 | $15 00 | $25 00 |
| 2 " " 1" " | 7 50 | 17 50 | 27 50 |
| 3 " " 1¼" " | 10 00 | 20 00 | 30 00 |

Larger taps at actual cost.

There are no hydrant or fire service charges made.

J. E. MCQUEEN,
Superintendent, Board of Public Works.

## Petoskey, Mich.

| | |
|---|---|
| Present population | 5,740 |
| Population served | 5,740 |
| Number of active services | 1,700 |
| " " meters | 1,700 |
| " " hydrants | 130 |
| Miles of water main | 23 |

The rates for all year around consumers of metered water are:

| | | Per 100 cu. ft. |
|---|---|---|
| First 600 cu. ft. or less monthly | | $ .90 |
| Over 600 and up to 2,000 monthly | | 13 |
| " 2,000 " " " 10,000 " | | 11 |
| " 10,000 " " " 16,000 " | | 10 |
| " 16,000 " " " 24,000 " | | 09 |
| " 24,000 " " " 40,000 " | | 07 |
| For the excess of 40,000 " | | 06 |

The minimum monthly bill is 90c. Where consumers do not use water more than eight months in the year, a special rate with a minimum of $2.00 per month is charged as follows:

| | | Per 100 Cu. Ft. |
|---|---|---|
| First 1,000 cu. ft. or less monthly | | $2 00 |
| Over 1,000 and up to 4,000 monthly | | $ .15 |
| " 4,000 " " " 10,000 " | | 13 |
| " 10,000 " " " 16,000 " | | 12 |
| " 16,000 " " " 24,000 " | | 11 |
| " 23,000 " " " 40,000 " | | 09 |
| For the excess of 40,000 " | | 08 |

The installation charge for either all-year or other customers, is $1.00.

There are no charges made for either public or private fire hydrants nor for sprinkler heads for fire protection of industrial plants.

P. T. MITCHELL,
City Manager.

## Rahway, N. J.

| | |
|---|---|
| Present population | 16,011 |
| Population served | 15,691 |
| Number of active services | 4,200 |
| " " meters | 200 |
| " " hydrants | 295 |
| Miles of water main | 42 |

The water rates in force since April, 1940, for all consumers in Rahway, N. J., are:

| | | |
|---|---|---|
| First | 10,000 cu. ft. | $1.39 per 1,000 cu. ft. |
| Next | 90,000 " " | 1.05 " " " " |
| Over | 100,000 " " | .725 " " " " |

Minimum Quarterly Bill

| | |
|---|---|
| For ⅝" meter | $3 50 |
| " ¾" " | 4 75 |
| " 1" " | 7 50 |
| " 1½" " | 16 00 |
| " 2" " | 20 00 |
| " 3" " | 45 00 |
| " 4" " | 70 00 |
| " 6" " | 120 00 |
| " 8" " | 200 00 |

Water rates are charged on the first day of January, April, July, and October for the preceding three months, and if the bills are not paid during the first 15 days of these months, a penalty of 5 per cent is added to the bill. If the bill remains unpaid for three months, both the bill thus in arrears and the bill for the quarter elapsed must be paid with penalties during the first month of the succeeding quarter, or water is shut off. All bills become a lien against the property.

All water meters are owned and maintained by, and remain under the full control of, the Water Department. Meters 1" and under are furnished and installed under its direction, but they must be fully protected from frost by the owner of the premises. Meters larger than 1" are furnished upon application. Domestic meters are tested upon application, but if they are found to register correctly, the expense of the test must be borne by the applicant.

All necessary piping to and in the premises, meters and other fixtures necessary for the service line, must be approved by the Department and installed at the expense of the applicant. Application for a permit to install a water service must be made on blanks in a special Permit-Book at the office of the Department, and must be signed by the owner of the property or an agent authorized to act for him. All charges by the Department for installation must be paid when the permit is granted. Licensed plumbers lay the service pipe after the Water Department has tapped the distributing main and inserted the necessary ferrule or stop-cock in the main. The plumber must secure a permit for the work before work is started, on the penalty of a $10 fine for each and every offense. No permit is issued by the Water Department for a service line until the plumber has secured a permit from the Street Department for the necessary excavation in the street.

Water is shut off by the Superintendent upon receipt of a written request, on blanks furnished for this purpose, at the office of the Department. Charges cease if the water is not turned on again within three months. If a service recorded as being shut off is found to be turned on, a charge is made for the use of water from the time it was shut off, and if the Superintendent finds that there was intent to defraud, a penalty of $10 is exacted. When water is shut off by direction of the Superintendent because the regulations of the Department are not observed, all charges of the Department against the property, including a fee for turning the water off and on, must be paid before it is turned on again. The fee is $1.00 if the water is turned off at the curb, but if it must be done at the main, the fee is $5.00.

There is no charge made to the city for the installation and maintenance of public fire hydrants, nor is there any charge for sprinkler head installation for private fire protection.

C. W. LUDLOW,
Superintendent, Board of Water Commissioners.

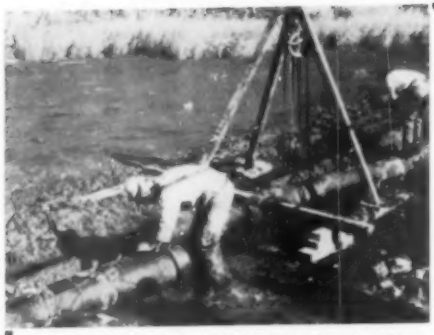
## Bristol, Va.

| | |
|---|---|
| Present population | 10,000 |
| Population served | 10,500 |
| Number of active services | 2,518 |
| " " meters | 318 |
| " " hydrants | 177 |
| Miles of water main | 29 |

The minimum monthly water bill in Bristol is $2.00. The rates for water used and measured by meter are:

| | | |
|---|---|---|
| First | 50,000 gals. | $ .20 per 1,000 gals. |
| Next | 50,000 " | .15 " " " |
| " | 100,000 " | .12 " " " |
| " | 100,000 " | .10 " " " |
| " | 100,000 " | .08 " " " |
| " | 100,000 " | .07 " " " |
| " | 500,000 " | .06 " " " |
| Over | 1,000,000 " | .05 " " " |

A 10% penalty is added to the entire bill if it is not paid by the 10th of the month following that in which the water was used. If the bill is not paid 10 days thereafter, water is cut off without further notice and an added charge of $1.00 made for restoring the service after the



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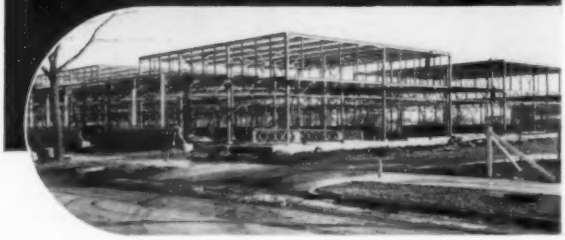

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entire bill is paid. There are no discounts on Bristol water bills.

The installation charges for installing a domestic service line is on a flat basis, $20 being the charge for the line from the main to the property line. Where a meter is installed on the line, an additional $5.00 is charged.

As the water works are municipally owned, there is no charge made for fire hydrants, and no charge is made against individuals for sprinkler fire service.

ASHER W. HARMAN,
City Manager.

## Harrisonburg, Va.

| | |
|---|---|
| Present population | 10,000 |
| Population served | 13,500 |
| Number of active services | 2,264 |
| " " meters | 1,898 |
| " " hydrants | 189 |
| Miles of water main | 49.24 |

The water rates of Harrisonburg are divided into domestic, small business, and large business classes, with a minimum charge permitting the use of a stated volume of water and then a stated rate per 1,000 gals. for water used in excess of the minimum allowance. These rates, water allowed and minimum charges for all classes are as follows:

Domestic Classes

| Class | Water Allowed Gals. | Amount | Excess |
|---|---|---|---|
| 1A | 5,000 " | $1.25 | 30c |
| 2A | 10,000 " | 2.50 | 25c |
| 3A | 15,000 " | 3.00 | 23c |
| 4A | 20,000 " | 3.60 | 21c |
| 5A | 25,000 " | 4.50 | 20c |
| 6A | 30,000 " | 4.80 | 18c |

Small Business Class

| | | | |
|---|---|---|---|
| B | 50,000 " | 6.00 | 12c |

Large Business Classes

| | | | |
|---|---|---|---|
| 1C | 250,000 " | 25.00 | 10c |
| 2C | 500,000 " | 50.00 | 10c |
| 3C | 750,000 " | 67.50 | 10c |
| 4C | 1,000,000 " | 85.00 | 10c |
| 5C | 1,500,000 " | 120.00 | 10c |
| 6C | 2,000,000 " | 160.00 | 10c |
| 7C | 2,500,000 " | 200.00 | 10c |
| 8C | 3,000,000 " | 240.00 | 10c |
| 9C | 3,500,000 " | 280.00 | 10c |
| 10C | 4,000,000 " | 320.00 | 10c |
| 11C | 5,000,000 " | 400.00 | 10c |
| 12C | 6,000,000 " | 480.00 | 10c |
| Outside City Users | 30,000 " | 9.00 | 30c |

There is a fee of $1.00 for tapping the city water mains. The tenant or property owner using city water is required to put up a deposit based on the amount of water he uses. This deposit remains in the city treasury until the consumer ceases to use city water. The service lines from the main to the property are installed by the property owner, with the city furnishing the meter and fittings. Plans are under way for the city to take over this installation.

There are no rentals for hydrants, public or private, and there are no charges for sprinkler heads for fire protection.

WILLIAM G. MYERS,
City Engineer.

## Chisholm, Minn.

| | |
|---|---|
| Present population | 7,476 |
| Population served | 7,476 |
| Number of active services | 1,540 |
| " " meters | 1,470 |
| " " hydrants | 129 |
| Miles of water main | 23 |

The water rate for all consumers is uniform at 25c per 1,000 gals. There is, however, a special summer-time sprinkling and garden rate of 10c per 1,000 gals. for water used above the normal consumption as recorded for the first quarter of the year. The minimum rate per year is $10.00, which is billed $2.50 quarterly.

A deposit of $5.00 is required for meters for residences and $10.00 for business places. If a second meter is required for the property, the owner must purchase it.

A flat charge of $40 payable in advance is made for new services and the replacement of old services. Three-quarter-inch copper pipe is used for all services.

A charge of $5.65 per month per hydrant is made to the city as hydrant rental for the installation and maintenance of fire hydrants. All fire lines are now metered.

A charge of $5.50 is made by the Water Department for thawing frozen fire lines. The Department has used Ford Meter Mittens to great advantage in poorer class homes to protect meters from freezing and in basements where there is no heat to protect the meter.

H. E. SPRINGER,
Superintendent, Water Department.

## Mattoon, Ill.

| | |
|---|---|
| Present population | 15,000 |
| Population served | Unknown |
| Number of active services | 3,300 |
| " " meters | 3,200 |
| " " hydrants | 335 |
| Miles of water main | 40 |

Water bills are rendered monthly in Mattoon, the net bill being due on or by the 16th of the month following the date of the bill, after which date a penalty of 10% of the bill is added. The water rates for treated water are:

First 1,337 cu. ft. $.36 per 100 cu. ft. during each month.
Next 65,513 cu. ft. $.13½ per 100 cu. ft. during each month.
All over 66,850 cu. ft. $.07½ per 100 cu. ft. during each month.

The minimum monthly bill is graduated according to the size of the meter installed for each customer's service as follows:

| | | |
|---|---|---|
| ⅝" meter | $ .90 | per month |
| ¾" " | 1.25 | " " |
| 1" " | 2.00 | " " |
| 1¼" " | 2.50 | " " |
| 1½" " | 3.50 | " " |
| 2" " | 5.00 | " " |
| 3" " | 10.00 | " " |
| 4" " | 17.50 | " " |
| 6" " | 35.00 | " " |
| 8" " | 50.00 | " " |

The Department may require a customer to make a reasonable deposit in advance to secure the prompt payment of bills. This amount is usually three times the probable amount that may be due to the Department at any time, but in no case is less than $5.00. Meters are furnished by the Department and installed by the consumer. The Department reserves the right to remove and test any meter at any time and to replace it with another meter. If a customer disputes the accuracy of a meter, he may have it tested in his presence. If the result of the test shows the meter to be accurate within 2% over or under, the customer must pay the sum of $1.00 for the work involved. If the meter is found to test inaccurately, no charge is made for the test, and the affected billing for water is adjusted accordingly.

Each applicant for water service must file with the Department an application in writing giving the name of the applicant, the location of the premises for which the supply is desired, the name of the owner of the premises if other than the applicant, the nature and size of the service, and the extent of the supply desired. On the reverse of the card the location of the service box, size of corporation cock, a statement whether a copper or lead connection is made, and the size and style of service pipe, are recorded. When a service is installed, the customer is required to pay for all the necessary municipal permits for the installation and operation of the piping and other equipment.

Upon receipt of the application, a permit is granted and the service is installed by a plumber employed by the customer. The Department makes the tap, for which the following charges are made based on the size of tap:

| | |
|---|---|
| ¾" tap | $2.00 |
| 1" " | 3.00 |
| 1½" " | 3.50 |

If a larger service than 1" is required, it is made with two or more taps none of which are larger than 1".

No charge is made to the city for fire hydrants for municipal fire fighting. Private fire protection, service lines, connections to tanks, hydrants, sprinkler systems or other devices must be used exclusively for fire-fighting purposes with no connection for other purposes. The monthly rates charged for private fire protection and automatic sprinkler systems are:

| | |
|---|---|
| 4" line | $1.50 |
| 6" " | 2.00 |
| 8" " | 3.00 |

JOHN A. GOETZ,
Superintendent, Water Department.

## Newport, Vt.

| | |
|---|---|
| Present population | 5,000 |
| Population served | 4,900 |
| Number of active services | 900 |
| " " meters | 200 |
| " " hydrants | 120 |
| Miles of water main | 25 |

The meter rates for water used in Newport, Vt. are:

| | | | |
|---|---|---|---|
| First | 40,000 gals. | $.20 | per 1,000 gals. |
| Next | 60,000 " | .15 | " " " |
| " | 100,000 " | 12½ | " " " |
| All over | 200,000 " | .10 | " " " |

A discount of 5% is made on any bill paid within 30 days from May 1, or November 1, the semi-annual payment days.

The Water Department installs the services from the main, after having made the tap, as far as the property line at its own expense.

A charge of $1.00 is made for turning off the water at the curb. If the water is turned off at the curb for 60 days, a rebate is allowed, but none are allowed under 60 days. This regulation applies only on flat-rate services.

No charge is made by the city for fire hydrants, and no charge is made for sprinkler heads on private fire lines, as the property owner pays for the entire installation from the buildings to the main.

S. J. BAILEY,
Superintendent of Streets.

*(To be concluded in the December issue)*

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# Forward Steps

***Reported by Municipal Officials, Chamber of Commerce Executives, and Others***

## *Public Hearings on Municipal Needs*

LONG BEACH, CALIF.—Public hearings on the municipal needs of his district, North Long Beach, are held by Irving P. Carroll, Long Beach Councilman, the first Monday evening of every month, in a public park recreation club-house. A Fact-Finding Committee of nine members who study conditions in the district reports at each meeting; written suggestions by citizens in the district are discussed; and anyone who has other suggestions or criticisms is invited to make them. The importance of the monthly meetings has grown to such an extent that sometimes councilmen, and occasionally the mayor and city manager, attend them. Results of the meeting are reported by Mr. Carroll to the City Council, with recommendations regarding them.

The written suggestions by citizens are made on coupons published by the Fact-Finding Committee in two of the local newspapers. Printed on the coupons is the statement, "I submit the following suggestion for the betterment of North Long Beach." Space is allowed for recommendations, and for the name, address and telephone number of the person replying. The newspapers are glad to cooperate in the scheme because the large number of coupons turned in is an indication to advertisers of wide reading of the papers.

Recently, three new sewer districts were formed in North Long Beach, where home building is active and from which it is spreading to neighboring communities. Enterprising subdividers are being persuaded to install sewers and other utilities before opening a tract, to provide 10-foot parking space, to set buildings back a suitable distance from the street, and incorporate various desirable restrictions into deeds.

Mr. Carroll keeps a constant check-up on the public interests in his district. Those that he cannot cover himself are delegated to an investigator employed by the city.

OWEN H. BARNHILL.

## *The Musicorium in El Dorado*

EL DORADO, KANS. — The Musicorium, completed here last spring in Forest Park, is used by the Municipal Band, and also attracts large outdoor audiences for singing and speaking engagements. The acoustics of the structure are excellent. Without a public address system, a speaker or singer, if he stands in the proper place on the platform, can be heard as clearly 300 feet away as if he were within 50 feet.

An outstanding feature of the Musicorium is its colored lighting facilities. The band master may match his music with changing lights of different colors and intensities, projected on the upper and back parts of the shell. Each of the four complete circuits for the four different colors includes a rheostat to control intensity.

The shell was constructed as part of a four-year plan for the development of recreational and park facilities in El Dorado. Built of monolithic concrete, it is 40 feet long, 15 feet deep and 20 feet high. The elastic arch continues down to the footings. The bases of the benches for the audience are of concrete, the backs of wood.

A 40- by 25-foot room in the basement, acoustically equipped, enables the band to practice through the winter months. It is heated by natural gas, and has ventilators in each side.

The Musicorium was built with WPA labor; the lighting, plumbing and heating facilities were installed by contract. Plans and specifications were drawn by the Engineering Department of the city—H. E. McMillen, City Engineer, and Lein Martindale, draftsman. The City Manager acted as consultant in laying out the general design and supplying the architectural features.

FRANK L. SEYMOUR,
City Manager.

## *New Street Naming and House Numbering*

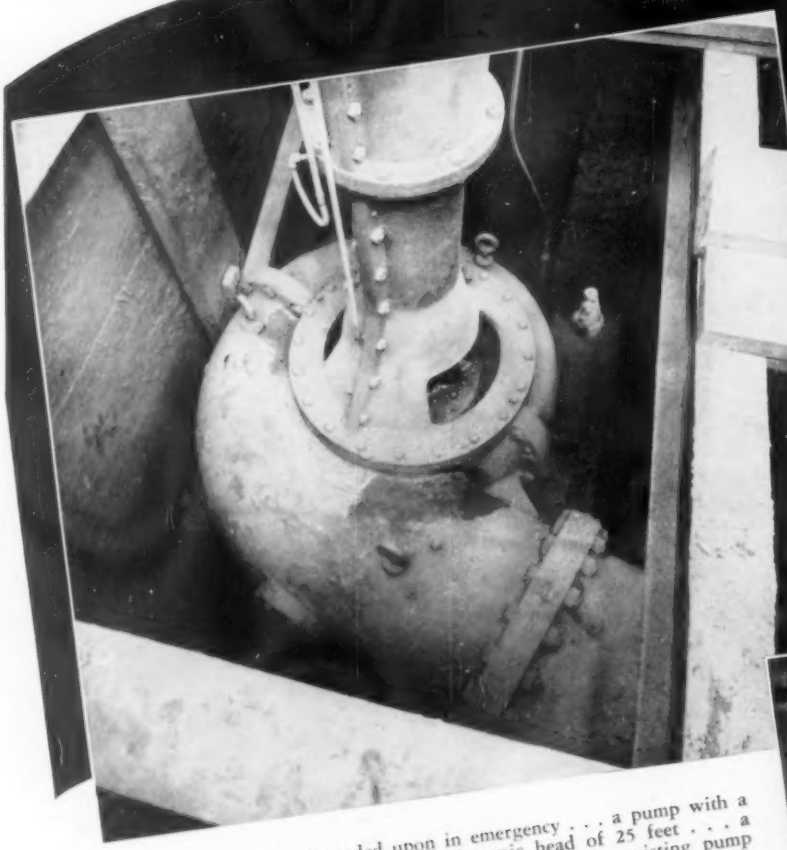
NASHVILLE, TENN.—There are 400 duplications among street names in Nashville, and the area immediately surrounding it. In many parts of the city, numbers are jumbled and out of sequence. Subdivision promoters have been able, in the past, to name roads as they pleased, and assign any number to a house. To clear up the resulting confusion, the city is planning to inaugurate a new coordinated street-naming and house-numbering system, to be in operation by February, 1941.

Last year the *Nashville Times* and the *Nashville Banner* put on an intensive newspaper campaign urging the change. As a result, a joint committee of ten, with one post-office representative, was named by the City Council and the County Court to study the situation.

The work of setting up the new system is being done by the City Plan-

*Left—Daytime View of the Musicorium, El Dorado, Kans. Right—The Band-Shell Floodlighted for an Evening Concert*

# F-M ANGLE-FLOW PUMP



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● A pump that could be depended upon in emergency . . . a pump with a capacity of 20,000 g.p.m. against a total dynamic head of 25 feet . . . a pump and motor both of which could be installed in the existing pump house—these were the major requirements of Granite City, Illinois when it became necessary to install a new stormwater and sewage pump.

A Fairbanks-Morse 24-inch vertical angle-flow pump driven by a 200-h.p. F-M motor was selected after consideration of all bids.

By choosing F-M equipment, Granite City saved the cost of building a new pump house and secured the advantage of Fairbanks-Morse *undivided responsibility for both pump and motor.*

Your pumping problem may call for equipment altogether different from that required by Granite City, but you'll find the right size and type in the Fairbanks-Morse line. For complete data on F-M angle-flow pumps, write for Bulletin 5710. Fairbanks, Morse & Co., Dept. 1, 600 S. Michigan Ave., Chicago, Ill. Branches and service stations throughout the United States and Canada.

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F-M

Pumps

ning and Zoning Commission, with the aid of suggestions made by William Gupton, Postmaster, and William S. McKinstry, Superintendent of Mails, who have studied the problem for several years. Recommended street-name changes will be submitted by the Planning Commission to the joint committee, and will, by agreement, be enacted into law by the Council and County Court, from which the Commission will request authority to issue house numbers and attach them to the property.

Before subdivisions are opened to the public, their streets will have to be named and approved by the Planning Commission, and each lot be given a house number. Upon the issuance of a building permit, the builder will be given a certificate showing the house number which, by law, he must post. The only factor in the plan which remains undecided is whether to assign a new number every 20 or every 50 feet. Possibly the 20-foot distance will be used in the business section, the 50-foot in the residential district.

The new system will allow Nashville to expand indefinitely and still retain orderly and efficient street naming and house numbering.

CHARLES W. HAWKINS,
Engineer, City Planning and Zoning Commission.

## *All Ages Enjoy New Athletic Field*

LAKE VIEW, IOWA.—A new athletic field was dedicated at Lake View last month during the annual football classic with the high school's chief football rival. The field provides day and night recreational facilities to suit the taste of every town resident, whether he be six or sixty years old—facilities for football, baseball, softball, tennis, volley-ball, outdoor basketball, badminton, skating, hockey, shuffleboard, croquet, and other sports and games.

The need for athletic grounds was intensified by the construction early in 1939 of a new auditorium-gymnasium on a part of the land which had served as the high-school gridiron. A corn field was converted into the present smooth-turfed athletic field, with the aid of the Work Projects Administration, Sac County and the town of Lake View, and after planning by town and school officials, architects, engineers and government officials. WPA contributed $14,820 of the costs; the school district spent $5,000, the city, $4,000; project completed in 15 months.

The entire recreational area is rectangular, the greater length running north and south, with the 60 x 360-foot gridiron, the practice football field, and a parking area along the west side. The baseball diamond and a soft-ball area lie somewhat east of the main football field, and these three areas will be surrounded by a turf running track.

The school building occupies a nearly central position in the eastern half of the grounds, with a free play area and a soft-ball court north of it, and a playground for small children on the south side. Concrete tennis courts are laid out a little farther west along the south side, with an area for practice basketball and roller skating.

Distributed in remaining available space are courts and facilities for shuffleboard, horseshoes, shot putt, broad jump, pole vault, badminton, volley-ball and other sports. The free play area was used last summer for croquet and miniature golf. During the winter months, the football practice field will be flooded for skating.

An elaborate floodlighting system allows night use of courts and field. Installation ($4,000) was financed by the city.

Bleachers seating 500 people have been built for both football and baseball spectators. Horizontal bars and tackling dummies have been provided for use at football practice; a batting cage and dugouts for baseball players.

C. W. ZEILMAN,
President, Board of Education.

*The corn field at left was converted into the athletic field at right*

*Floodlighting the athletic field at Lake View provides night use of courts for tennis, shuffleboard, volley-ball, badminton and handball*

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*1st* of ten meters in rating by St. Paul, Minn. engineers and in engineers' tests in Portland, Ore., Tulsa, Okla., Providence, R. I., Dearborn, Mich. and elsewhere.

*1st* in the number of meters sold.

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*1st* in the number of repeat installations.

*The Original CARL MAGEE Meter*

## DUAL PARKING METER CO.

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Leadite is shipped in powder form, packed in sacks of 100 lbs. net each
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## *County Historical Map*

URBANA, ILL.—The first white person to die in Champaign County, the first to become a bride, the first use of a window-sash, the site where the last words of Lincoln were spoken in Illinois—these are some of the unusual facts which are shown in a colorful historical map of Champaign County which has been completed by the Regional Planning Commission. Pointing out historical events in the county going back to Indian and early settler days, the map tells of the establishment of the county; records the names of early settlers; and makes notations about old roads, traces and trails, original groves, homes of pioneers, favorite Indian haunts, origins of community names, cemeteries of early interest, locations of oldest trees, sites of bridges and taverns, and early surveys of the county. To help in locating points of interest, present roads and streams are indicated.

The Planning Commission feels that the map will be valuable as a record of county history, and that it will aid in making the local people more history-conscious, more understanding of the roots and background from which their present community has sprung. It should help in marking points of importance in the county, and perhaps suggest the desirability of restoring some of the old landmarks. And it will be useful in planning hikes or laying down and marking trails.

Copies of the map will be presented to all the schools in the county, to the Boy and Girl Scout headquarters, and to the libraries. The public will be able to obtain them at the office of the County Clerk at a cost of 60 cents each, the resulting funds to go to the Planning Commission.

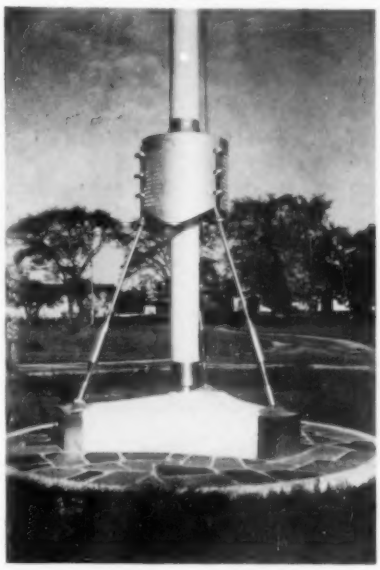
The work on the plan was done largely through the collaboration and compilation by local citizens, the drafting by NYA labor. Cost of the materials used and the printing constituted the only expense to the county.

KARL B. LOHMANN,
Chairman, Champaign County Regional Planning Commission.

## *Memorial Flagpole Built to Withstand Deterioration*

THE memorial flagpole designed for Marshfield, Mass., is distinctive because of its permanent character.

According to its designers, Kilham, Hopkins & Greeley, architects, at 126 Newbury Street, Boston, steel poles are easily attacked by rust and are too attenuated to lend themselves easily to a good memorial design. Wood poles can be cut to any desired proportions and so fit the architect's esthetic requirements, but they are generally secured in place by being stuck into an unventilated mass of damp earth, stone or concrete, which causes them sooner or later to rot off.



*Memorial Flagpole in Marshfield, Mass., Built for Permanency*

The mast shown here is entirely free from bottom to top: it is supported by a pintle at the bottom, and steadied by three rods of bronze. The alignment of the pole can be corrected at any time by means of turnbuckles so designed as to be integral with the rods and not capable of being mischievously manipulated. The rods are fastened at the top to a bronze collar, and extend at the bottom into a massive concrete foundation. The pole is of well-seasoned timber which will survive all weather, even if it is not frequently painted. All bronze is brilliantly finished in chromium.

The memorial inscription is carved on the stone base, and the names are commemorated on the three bronze shields which form the collar at the top of the rods.

# City Manager Appointments

Paul A. Bankson, City Assessor since 1934, has been appointed Acting City Manager of New Rochelle, N. Y., for the interim of a leave of absence requested by City Manager Irving C. Brower.

August H. Lake, City Commissioner and Mayor of Bozeman, Mont., has accepted an appointment as City Manager during a year's leave of absence of M. E. Henderson, who will serve with the Montana National Guard.

J. Guiton Morgan, of Austin, Texas, is on leave for six months to serve as Major in the Selective Service System in Washington. James M. Garrison, Assistant City Manager, will act as Manager during this period.

Walter Cooper, utility consultant, of San Diego, Calif., was appointed City Manager of that city on October 8. Fred M. Rhodes, who has been serving as Director of Public Works and City Manager, will assume the full-time position of Director of Public Works, necessitated by the rapid growth in population and the vast national defense improvements.

Harry N. Lowe, of Norton, Va., has been appointed Town Manager of Tappahannock, Va., to replace E. A. Beck who was recently promoted to Abingdon, Va.

Donald C. Scott has replaced Roy R. Hislop as City Manager of Phoenix, Ariz.

William H. Carper has replaced V. Von Gemingen as City Manager of Culpeper, Va.

J. W. Coleman, former oil producer, of Wichita Falls, has been appointed City Manager of Walters, Okla., to replace Bob Lines.

CLARENCE E. RIDLEY,
Executive Director, International City Managers' Association.

# The Municipal Bond Market

Recent sales of new issues from October numbers of *The Bond Buyer:*

| Amount | Borrower and Purpose | Rate (%) | Term (Years) | Basis (%) |
|---|---|---|---|---|
| $ 245,000 | St. Joseph Co., Ind., Advancement Fund | 1 | 2.85 Avg. | .79 |
| 100,000 | Oneida Co., N. Y., Armory | 1 | 5 Avg. | .97 |
| 132,000 | Brockton, Mass., Municipal Relief | 1.25 | 5-33 Avg. | 1.12 |
| 180,000 | Portland, Maine, Improvement | 1.25 | 1-15 Ser. | 1.15 |
| 252,000 | Kennewick Irrigation District, Wash., Refunding | 1.25 | 19.2 | 1.25 |
| 175,000 | Duluth, Minn., Municipal Flying Field and Airport | 1.40 | 7.66 Avg. | 1.37 |
| 337,000 | Minneapolis, Minn., Refunding | 1.5 | 5.5 Avg. | 1.45 |
| 535,000 | North Hempstead, N. Y., School | 1.5 | 8.66 Avg. | 1.47 |
| 181,000 | Charleston, S. C., Refunding Paving | 1.5 | 1-5 Avg. | 1.5 |
| 240,000 | Floyd Co., Iowa, Court-House | 1.5 | 8.75 Avg. | 1.48 |
| 175,000 | Jasper, Texas, Light Plant Revenue | 4.25 | 11.66 Avg. | 4.25 |
| 1,500,000 | Cincinnati, Ohio, Flood Protection | 2.75 | 1-30 Ser. | 2.75 |
| 191,000 | Mobile Housing Board, Ala., Series A (First Issue) | 3.5 | 5-7 Opt. Avg. Prem. | 3.499 |
| 2,500,000 | Salt River Project Agricultural Improvement and Power District, Ariz., Corporate, Issue No. 3 | 4.5 | 10-15.25 Opt. Avg. Prem. | 5.01 |
| 100,000 | Farmington Tp., Mich., Water-Works Revenue | 4.5 | 14.33-18.16 O.-A. | 5.26 |

# PARKING METERS WIN

IN FIVE YEARS the automobile parking meter has won the approval of city officials, merchants, and drivers all over the United States.

TO INSURE municipalities of the full benefit of the engineering and development work in parking meters, manufactured under basic patents granted by the United States, Vehicular Parking, Ltd., announces the following companies only are licensed by it to manufacture, sell and install such meters:

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Oklahoma City, Okla.

**DUNCAN METER CORPORATION**
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**THE KARPARK CORPORATION**
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**MICO METER COMPANY**
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***THE STANDARD METER CORP.**
Hartford, Conn.

**Sold only in the New England States, New York, New Jersey and Pennsylvania.*

FOR FULL INFORMATION on the proven parking meter, communicate with any of the above.

## VEHICULAR PARKING, LTD.

**TOWER BUILDING • WASHINGTON, D. C.**

# Fixing Meters and Not Tickets Solves Portland's Parking

*By* F. T. Fowler
Traffic Engineer, Portland, Ore.

PARKING meters were installed in Portland in February, 1938, to eliminate double parking and all-day parking, provide space for shoppers and salesmen, and thus reduce congestion in the district. The original 1,438 Karpark and Dual automatics accomplished their purpose so thoroughly that in April, 1939, merchants petitions caused 431 more meters of the same makes to be installed. Fixless traffic tags and first-class maintenance of the meters are factors in the success of the system.

Five men do the servicing; one in the city's repair shop, three on the streets, and one on reserve. These men, employed in the Bureau of Traffic Engineering, do other repair work as well. The program of maintenance consists of replacing any worn parts, cleaning and oiling, painting outer cases of meter heads at 18- to 24-month intervals and the standards once a year.

Revenue from the meters since their inauguration on March 7, 1938, to July 31, 1940, totaled $381,687.40. This money is used, and under the parking-meter ordinance must be used, for maintenance of the meters, for traffic betterments, and for law enforcement. Specifically, the money goes for salaries for police officers patrolling the metered district, for their motorcycles, for signs, street painting and traffic signals, for servicing the meters, for establishing an accident-investigation program and operating the Traffic Safety Commission.

The meters are operated and serviced by the Bureau of Traffic Engineering in the Department of Public Works, collections are made by the Department of Finance, and parking restrictions are enforced by the Bureau of Police. Some of the details are shown in the views below.

*At Top, Views of Two Portland, Ore., Streets Where Karparks Are in Use. Below, a Lady Feeding a Dual; the Inside Man on Meter Maintenance*

TO give your city the most perfect parking meter service possible. A parking meter's life is a tough one (heat, snow, sleet, rain, bumps, etc.) and fragile hair springs and delicate balance wheels cannot stand the gaff the way Karpark's rugged pendulum can.

IN ADDITION—Pendulum Control is simple—runs longer on one winding—cannot be harmed by overwinding and is more accurate.

→ ***Your request will bring detailed information on all phases of parking control.***

**KARPARK CORPORATION**

**420 LEXINGTON AVENUE • NEW YORK, N. Y.**

All KARPARK Meters are m'f'd. and sold under the patents of VEHICULAR PARKING, Ltd.

Keystone unit, one of several now in use in Rochester, N. Y.

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***Keystone Self-Trimming Refuse Collector***

1—Will reduce your costs in the collection of garbage and all city waste.
2—Handles maximum load in minimum space.
3—Bases economy on TONNAGE, not yardage.
4—Is odorless, sanitary, noiseless.
5—Loads at rear, dumps automatically.
6—Offers no hazard to collectors through moving parts in drum.
7—Is a proven product—particulars and analysis of performance upon request.

***Surveys made and demonstrations given.***

**Keystone Equipment Corp.**

**111 South Fifteenth St. Philadelphia, Pa.**

**CENTRIFUGAL PUMPS**
**FIRE HYDRANTS**
**A.W.W.A. GATE VALVES**

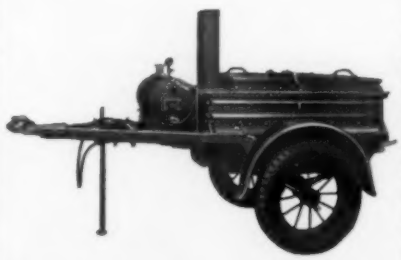
**Manistee** single-stage Double-suction pumps, 75-20,000 g.p.m. capacity

**Manistee** multi-stage pumps, 50-3500 g.p.m. capacity with heads up to 1600 feet

***Write for Bulletins***

**MANISTEE IRON WORKS CO.**

MANISTEE MICHIGAN



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Send today for our complete catalog showing our full line of Tar and Asphalt Heating Kettles, Spraying Attachments, Pouring Pots, etc.

**CONNERY CONSTRUCTION CO.**

**4000 North Second St. Philadelphia, Pa.**

# Traffic Control and Facilitation

Conducted by Publications Committee, Institute of Traffic Engineers, 60 John St., New York
Paul L. Green, Chairman; Louis A. Andriaccht, Frank A. Ashe, Charles G. Beckenbach, Wallace L. Braun, Nathan Chernlack, Carl E. Fritts, Alexander A. Hayton, Otto K. Jelinek, Harry C. Koch, Merwyn A. Kraft, Franklin M. Kreml, Tracy D. LeMay, Harry E. Stedman, Robert O. Swain

# Optical Parts of a Traffic-Signal Unit

## *Units Should Be Cleaned at Least Three Times a Year*

By F. S. Huot
Kopp Glass Company,
Swissvale, Pa.

THE optical parts of a traffic signal unit usually consist of a lamp, a parabolic reflector, and a cover glass or lens. The relative position of these three parts with regard to each other is so important that they are usually treated as a single unit.

The origin of the light flux is at the filament of the lamp. The purpose of the reflector is to collect the impinging light rays and redirect them to the lens. The purpose of the lens is twofold—first, to redirect again the light, and to produce the required color.

It is assumed that the manufacturer furnishing the equipment has made a wise selection of the important unit parts, and this article will deal largely with the functions, maintenance and care in handling these parts in service. As a guide for future purchases, however, the Institute of Traffic Engineers has prepared specifications covering materials used in the units, as well as color and distribution characteristics for the cover glass or lens which will be referred to later.

Adherence to the specifications will result in a standardization in traffic-signal practice which eventually will eliminate the vast differences and confusion that now exist.

Figure 1 is a diagrammatic sketch showing the action of a parabolic reflector when a point source of light is placed at its focus. The parabolic form is used because it causes the reflected light to emerge from it as a parallel bundle of rays. It is important that the light source be situated at the focal point, for otherwise the light is reflected through a wide angle instead of being limited to a narrow beam. This is shown in Figure 2 where the source is placed in front of the focal point. Figure 3 shows the results if the light source is placed behind the focal point.

When the light source is placed at the correct position in the reflector, the emerging concentrated beam is still not suitable for traffic signal purposes. A lens is necessary to further control the beam so that it is directed downward and also given a lateral spread. This is necessary because the eye of the motorist is located below the level of the traffic unit. The lateral spread is necessary in order that the signal may be visible from the sides of the road.

The characteristics of the beam distribution of the lenses now in use vary greatly. It is obvious that the amount of angular deflection of the light rays, both downward and laterally, should be based upon the position of the unit on the street, especially its mounting height. The Institute of Traffic Engineers' specifications contain a candlepower distribution chart which specifies the minimum candlepower values at specified points or location in the beam or field. The specifications are set up for pedestal-type traffic-signal units.

### A Color Should Be Uniform

Since the principal function of a traffic signal light is usually based upon its color, the quality or hue of the colors should be well defined and kept uniform. An examination of colored traffic lenses in use will show extremely wide variations in colors; so much so that if some lenses of a so-called like color were viewed side by side, they would not be recognized even as related colors.

The railroads very early in their signal work recognized the necessity of having uniform colors in their signal systems. They therefore decided first on the hue or color best suited for their signal purposes. Suitable limits permitting necessary manufacturing tolerances were then established for these colors. The specifications were adopted by all the railroads in the United States, and all manufacturers furnishing signal glass to the railroads must meet the color specifications.

The specifications recently adopted by the Institute of Traffic Engineers

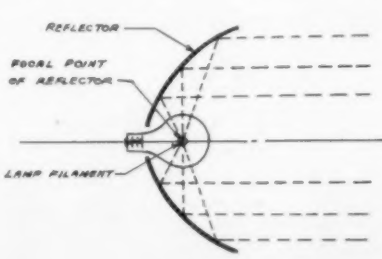


Fig. 1

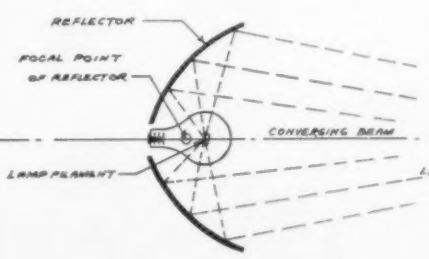


Fig. 2

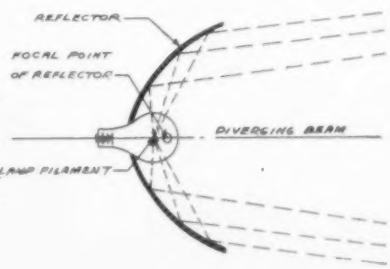


Fig. 3

# SOLVE YOUR PARKING PROBLEM WITH

# MILLER

THE PIONEER COMBINATION PENNY-NICKEL

## PARKING METER

**FLEXIBILITY**—MILLER has the greatest flexibility, permitting rate adjustments to best suit your city's particular needs. Sixteen different rate combinations are now being used in Miller Meter installations, with many more possible.

**VISIBILITY**—The through and through visibility of MILLER METERS is second to none. Effective for night as well as daylight operation. Aids the motorist and requires less policing effort.

**DEPENDABILITY**—MILLER dependability comes from long experience. In one installation MILLER METERS were operated more than seven million times over a twelve months' period with a trouble record for several months of less than 1/500 of one per cent.

Made in only ONE MODEL, ONE QUALITY, at ONE PRICE

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## DUNCAN METER CORPORATION

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Municipal Street Sweeping Costs GO DOWN when City Purchases of GO UP! SWEEPERS VAN DORN

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This entirely new plan of disposing of street sweepings will LOWER COSTS in YOUR City!

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define and standardize the colors suitable for traffic signals.

The lamps used in traffic signals are usually 25-, 40-, 50- or 60-watt; chiefly 50- or 60-watt in the belief that the increased "punch" from the higher wattage lamps more than compensates for the increased current cost. The lamps used in the past have been single filament types, but there has now been developed a two-filament lamp. The secondary filament is designed for a longer life than the primary filament. In this way, if the bright primary filament fails, there is still sufficient light to illuminate the unit until replacement can be made.

In order to insure normal life for the lamps, it is found to be good practice to install lamps rated 2½ volts above the maximum voltage at any installation as determined by survey.

Not only should care be given to the proper selection of the optical parts of a traffic signal and to their correct relative position with each other when installed, but the unit must also be kept clean in service. It has been found to be good practice to clean the units at least three times a year, because efficiency can be decreased as much as 30 per cent or more by dust and dirt accumulated in a short time.

# Those Twin Problems— Darkness and Pedestrians

*By* T. J. SEBURN
City Traffic Engineer,
Kansas City, Mo.

IT appears to me that the most important phase of the city traffic problem is the night problem, in which the factor of visibility should be given the greatest consideration. No driver will be involved in an accident with any object if he can see it in time.

## Night Driving Conditions

An analysis of accident facts in Kansas City, Mo., indicated that in 1938 three-fourths of our serious traffic accidents had occurred during the hours of darkness, and we found that during the same hours only one-third of the total traffic movement was on the streets. In other words, three accidents occurred at night for each one reported during hours of daylight, and at this same time only one vehicle was on the streets for every two operating in daylight. This means that the hazard to each person at night is six times as great as that faced by the individual using the streets in the daytime. Uncertainty of vision certainly was responsible for a great share of this difference.

The Police Department recognized this condition, and particular stress was laid upon night enforcement. Police officers were assigned to the more hazardous sections in shifts which provided 24-hour supervision. As a result, the percentage of night accidents was reduced until approximately 50 per cent occurred during the hours of darkness. This was a considerable improvement; and it was also a definite indication that the problem could be met by proper attack.

We felt that still more could be done to reduce the appalling night toll, and determined to make a test of reduced speed for night driving.

Let me emphasize at this point that we do not feel that this program is a substitute for adequate street lighting, but we also feel that no city can hope to equal daylight conditions with artificial light on all its streets. A great improvement can be made on the major traffic arteries, and some day these may even be so lighted that they will compare very favorably with sunlight.

But the question was: Should we wait for that time or should we attempt to do something immediately?

Our test of the night speed limit of 25 miles per hour on streets where the daylight speed is 35 miles per hour showed that during the year 1939 a 60 per cent reduction in night-time accidents was made, while the reduction in daytime accidents amounted to 10 per cent. Present experience is that our streets are practically as safe at night as they are in daylight.

I am not urging anyone else to adopt such a rule, but I do wish to stress the fact that extra precautions must be taken to reduce the excessive night toll, and I submit these facts as an indication that something can be done by following the dictates of accident experience.

## The Pedestrian Problem

About 70 per cent of our fatal accidents in urban areas involve persons on foot, and detailed studies indicate that in two-thirds of them the pedestrian was at least partly at fault.

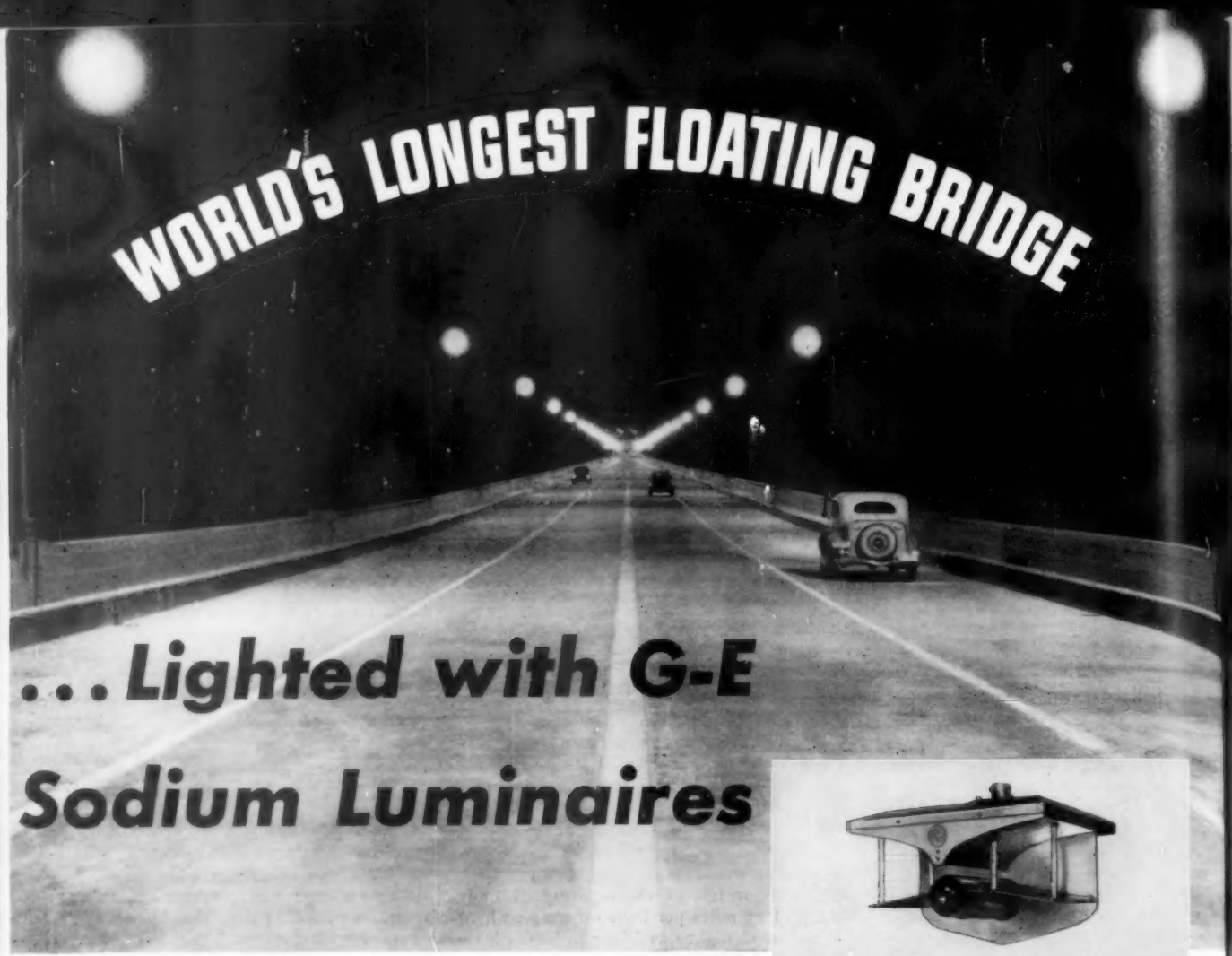
The adult pedestrians have not accepted their share of the responsibility for their own safety, while our children have proved that it can be done. With the best educational methods and strict supervision over their actions, we find that in general throughout the nation the child accident rate has been reduced considerably. The children use the same streets as the adults. They face the same drivers of motor vehicles. Their speed in walking across the street is no greater than that of the average adult. In fact, they are superior to us grown-ups in only one respect, and that is the fact that they have realized their proper conduct in traffic, and as a result of this realization they are using our streets with a greater degree of safety. They are sharing the responsibility.

Although the pedestrian in daytime presents quite a hazard, it is even more necessary for him to do his share at night. Photographers have found that it takes a larger stop opening to photograph a person in dark clothing than a person dressed in light clothing. Thus science has definitely proved to us the fact that with the best of lighting conditions pedestrians at night must carry an additional share of the responsibility.

It has long since been recognized that when a driver approaches a traffic signal with the red light against him, or when he faces a stop sign, he must obey these devices regardless of any other condition on the street. As a result of judicious installation of stop signs and rigid enforcement of these provisions, we have found in the last several years that serious traffic accidents involving only motor vehicles have steadily decreased.

Not so with those involving pedestrians. These persons must be forced to obey the same rules that apply to them while they are at the wheels of their motor cars. It is not enough for our traffic laws to say that a person crossing in the middle of the block should yield the right-of-way to drivers on the street; we must say that he must not cross in the middle of the block, and we must provide additional facilities for his safety in crossing.

It appears to me that (1) the night driving conditions, and (2) the pedestrian problem, are the most important accident facts for consideration at this time.




# . . . Lighted with G-E Sodium Luminaires

MR. L. V. MUNROE, Chief Engineer of the Washington Toll Bridge Authority and Director of Washington Highways, knows what sodium lighting can do. Since 1936, when he directed the first installation on the Pacific coast just south of Tacoma, experience has proved that night-traffic fatalities can be reduced by the installation of sodium luminaires.

So the mile-and-one-quarter Lake Washington Pontoon Bridge was added to the ever-increasing list of bridges lighted by General Electric. Equipped with 10,000-lumen lamps, 131 sodium luminaires safeguard fast-moving bridge traffic and, at the same time, enhance the architectural appearance of the structure itself.

The tunnel approach to the bridge is also lighted with G-E units—41 Form 81 sodium, and 16 mercury incandescent.

During the daytime, as a motorist enters a tunnel the light intensity may drop from 5000 to less than 5 foot-candles, which may temporarily blind him—as when entering a darkened theater. So the Washington Toll Bridge Authority installed supplementary mercury lighting within the tunnel entrances—16 mercury luminaires which, in the daytime, provide extra entrance lighting, to reduce the amount of change in light intensity. General Electric, Schenectady, New York.



## WHY SODIUM LIGHTING WAS SELECTED

**IT IS EFFICIENT,** having an output of 55 lumens per watt, or nearly three times that of an incandescent lamp.

**IT UTILIZES THE AVAILABLE LIGHT** with a special combination of reflectors made from *Alzak finished aluminum. This material provides a high degree of reflection and has excellent durability under exposure to weather.

**IT INCREASES VISIBILITY** by providing a wide path of specularly reflected light on the road surface. This high surface brightness makes objects visible by silhouette and enables motorists to drive with depressed headlight beams. Glare and partial blindness from approaching vehicles are greatly reduced.

**IT PROVIDES A SOFT COLOR** which is pleasing and restful. Although the light is monochromatic, it is not objectionable in highway lighting intensities.

*Manufactured under Aluminum Company of America patents.

GENERAL ELECTRIC

# Outdoor Lighting

## Streets—Highways—Floodlighting

# Educated Street Lighting

*By* STUART M. WEAVER
Superintendent of Water Works, Montclair, N. J.

MORE light is the first step toward more effective lighting. And more light may be obtained for the same money with fewer and larger lamps. On this premise is being erected the new street-lighting system of the city of Montclair, N. J.

Inspection of utility rate schedules shows that lamp size and output increase faster than annual operating cost. Reason: the major items of cost, capital and maintenance charges vary little with size of lamp.

Our consulting engineer, Arthur J. Sweet, of New York City, is author of an article in the 1938 edition of THE MUNICIPAL INDEX, showing that a 4,000-lumen lamp system will produce four times as much light per dollar as a 600-lumen lamp system. Similarly, 2,500-lumen lamps have a 3 to 1 advantage over 600-lumen lamps, and 1,000-lumen lamps have a 1½ to 1 advantage over 600-lumen lamps.

### High Mounting

Higher mounting height necessarily follows the wider spacing of fewer and larger lamps. Higher-mounted lamps light more street length per lamp, and reduce glare. A 25-foot height was adopted for intersections, and 22 feet between intersections. Trees prevented 25 feet throughout.

### Refractors

Without refractors most of this efficiently generated light would be wasted. The ordinary bulb, either bare or surrounded by diffusing glassware and suspended under a reflector, directs less than 20 per cent of the light onto the street. Eighty per cent flies off to illuminate trees, yards, house fronts, and bedroom windows. This illumination pattern on the ground is circular—very brilliant in the center under the light, and rapidly diminishing radially. Upright lights on post tops are even less efficient.

But there is no longer an excuse for being so wasteful. Reflector refractors are inexpensive and deliver 2½ times the present amount of the light onto the street. Instead of projecting a circular pattern onto the street and the immediately surrounding ground, they project an elongated elliptical pattern along the street. The lateral light, ordinarily wasted, is put to work by the glass prisms of the refractor. Not only is the pattern elongated, but, also, greatly intensified rays are directed toward the tips of the ellipse, to wipe out the dark spots ordinarily found between lights. This makes possible wide spacing with the economy of fewer and larger lamps.

Street intersections, the scene of most accidents, and ordinarily expensive to illuminate, are effectively illuminated by a 4-way refractor newly designed for Montclair. This one light is suspended from a cable over the center of the intersection. It lights the intersection so that pedestrians, cross traffic and street signs may be seen readily, and each of the four beams illuminates at least 100 feet of approaching streets. Our experiments demonstrated that the refractor bowl lighted nearly twice the length of approaching streets lighted by a diffuser bowl using the same bulb.

The luminaire to be used in Montclair will consist of a Holophane refractor bowl mounted into a reflector fixture. Several companies sell such equipment, including General Electric, Westinghouse, and Line Material. The exterior looks like any modern acorn-type of luminaire. But the interior surface of the glass bowl is cast into optically precise prisms. These bend the light away from private property and direct it to the street. How effectively they do it may be seen in the two diagrams. The solid line shows reflector-refractor distribution, and the dashed line shows the ordinary diffuser luminaire distribution under identical conditions.

### Intensity and Traffic

An economical lighting system, like an economical paving system, must be fitted to traffic needs. As unnecessarily wide and heavy pavements are avoided for purely residential construction, so unnecessarily brilliant lighting is also avoided. The saving so realized is used to step up the brilliance of principal thoroughfares in proportion to their traffic density. Such harmonizing of brilliance with traffic density did not obtain in our old system.

Especially brilliant lights are suspended over intersections. This is a double-barreled attack on the great hazard at intersections, as follows:

1. *Better light at intersections means better visibility and fewer accidents. This is particularly true with the new 4-way refractor illuminating the approaches.*

2. *The prominence of the brilliant light will automatically warn the motorist of his approach to an intersection. He will instinctively exercise more caution.*

### The Plan

The consultant's plan provided for a complete new system of lights supported on ornamental standards supplied by underground circuits. Ninety of the old, obsolete system was usable. The plan contemplated three stages of development:

1. The ultimate satisfaction of every modern need.
2. The minimum necessary for present needs.
3. An intermediate plan.

The minimum plan provided conservatively three times as effective lighting as the old system: through (1) larger and fewer lights producing 65 per cent more lumens; (2) refractors which put 2½ times as much of the light on the street; and (3) high intensities conserved for hazardous locations.

### The Cost

The consultant's cost estimate was based on a municipally owned and operated system. Such knowledge was of particular value in later negotiations with the utility for sweeping improvements. The estimated cost of the new system was $470,000. The annual operating cost, including write-off with interest in 20 years, was $60,500. This was based on utility-supplied current at $0.0125 per kwh. The utility, however, applied a $0.0174 rate.

# SAFER LIGHTING...

# with FORM 79

## 10 "EXTRA VALUE" FEATURES OF NOVALUX FORM 79

1. Stepped (lamp saving) reflector.
2. Spun sealed globe holder.
3. Reconditioned reflector exchange.
4. Durable Glyptal finish.
5. Machined joint between hood and reflector.
6. Die-cast aluminum hood.
7. Heavier pressed globe with drip-proof edge.
8. Larger ornamental globe (optional).
9. Available for Type H mercury lamps.
10. Choice of 3 globe holders.

## Modern General Electric Street Lighting Units . . . *via* GraybaR

When you put your street lighting problems up to GRAYBAR, you get a double assurance of plus value:

*First*, you get the benefits of such outstanding lighting units as the General Electric Form 79 Luminaire – the unit that "delivers better than 80% more useful light at a first cost of 35% less than older designs." Other modern G.E. units, too, are available to meet any combination.

*Second*, GRAYBAR'S experienced staff of specialists on municipal lighting and public safety problems stands ready with *service to you* as its primary responsibility. In analyzing your needs and specifying lighting units and accessory equipment, it assures a broad-gaged point-of-view and reflects a more intimate knowledge of local conditions. And because of GRAYBAR'S *all-inclusive* service on public safety equipment – traffic signals, fire alarm systems, police radio, and the like – GRAYBAR specialists can give experienced aid in a coordinated public safety improvement program of which safe lighting is a part.

Why not get in touch with your local GRAYBAR branch for the complete story on modern ways to safer street lighting? Or, write direct to GRAYBAR for Bulletin which describes the Form 79 unit in detail. Graybar Electric Company, Executive Offices: Graybar Building, New York.

## PUBLIC SAFETY EQUIPMENT

GENERAL ELECTRIC STREET LIGHTING G.E. AND HORNI TRAFFIC SIGNALS HANPARK PARKING METERS WESTERN ELECTRIC POLICE RADIO HORNI FIRE ALARM EQUIPMENT

GraybaR QUALITY Since 1869 — Distributed by GraybaR ELECTRIC COMPANY

and on this basis the annual cost would have been $66,625. Even this was $5,700 below the cost of the old inferior lighting.

The utility must be given credit for expending at least $250,000 for a new lighting system, with no hope of increased revenue. On the other hand, utility rates provide for writing-off lighting installations in from five to ten years. Consequently, the city had paid two or three times for the 20-year-old system.

By following the principles laid down by the consultant, the utility is likewise providing three times as effective lighting without increase of cost to the city.

Under the new five-year contract the company agreed within a year to replace the old system of 2,572 lights, ranging in size from 600 to 4,000 lumens and averaging 1,170 lumens, with a new system of 2,306 lights ranging in size from 1,000 to 6,000 lumens and averaging 2,260 lumens. All locations will be changed in accordance with carefully considered design, and all brackets and luminaires will be new. About half the system is ornamental.

—From a paper at the Detroit convention of the American Public Works Association, on September 30, 1940.

# Floodlighted Municipal Fields

*By* F. D. CROWTHER
Lighting Division, General Electric Co., Schenectady, N. Y.

ABOUT 100 municipal parks in the United States are equipped with lighting systems which enable football to be played at night. The popularity of the game under lights, as evidenced by increases in attendance as high as 400 per cent, is encouraging many municipal park and recreation officials to advocate night games.

The recommendations that follow are the results of studies by qualified lighting engineers. These include recommendations for lighting gridirons for 6-man as well as 11-man football teams. The table covers various field classifications, data on the lights recommended, their locations and mounting heights. For example, if the gridiron to be lighted is one which attracts several thousand spectators (Class A), and poles for the lights are placed behind the seating facilities from 30 to 75 feet from the sidelines, 80 1,500-watt floodlights, 8 poles, and 10 floodlights per pole are recommended. The approximate total lighting load for such a system, with the lights operating at 10 per cent overvoltage, is seen to be 139 kilowatts.

Because of the relatively few hours the lamps are operated per season, it is economical to operate them at about 10 per cent over their rated voltage. The gain in lamp efficiency thus obtained provides an increase of about 35 per cent in the light generated, with only about a 16 per cent increase in the amount of power used. Lamp life is reduced to about 30 per cent of normal, but on the average will be sufficient for two seasons' operation or longer.

Taking a hypothetical case, if the light poles are erected 75 feet or more from the sidelines of the 11-man gridiron, the poles should be spaced 150 feet apart.

| | Class A<br>For fields accommodating several thousand spectators | | | Class B<br>For the better-than-average installation | | | Class C<br>For the average high school and small college field | | | Minimum installation for lowest project |
|---|---|---|---|---|---|---|---|---|---|---|
| | FOR STANDARD 11-MAN FOOTBALL | | | | | | | | | |
| Distance of poles from sidelines of field | 15 to 30 feet | 30 to 75 feet | 75 to 120 feet | 15 to 30 feet | 30 to 75 feet | 75 to 120 feet | 15 to 30 feet | 30 to 75 feet | 75 feet or more | 15 to 30 feet |
| Total number of 1500-watt floodlights | 80 | 80 | 84 | 60 | 64 | 60 | 40 | 40 | 42 | 32 |
| Total number of poles (Half on each side of field) | 10 | 8 | 6 | 10 | 8 | 6 | 10 | 8 | 6 | 8 |
| Floodlights per pole | 8* | 10/ | 14/ | 6* | 8/ | 10/ | 4* | 5/ | 7/ | 4* |
| Total load (kw) for 10 per cent overvoltage operation (APPROX.) | 139 | 139 | 144 | 104 | 111 | 104 | 70 | 70 | 73 | 54 |
| | FOR THE NEW 6-MAN FOOTBALL | | | | | | | | | |
| Distance of poles from sidelines of field | | | | 15 to 30 feet | 30 to 60 feet | | 15 to 30 feet | 30 to 60 feet | | 15 to 30 feet |
| Total number of 1500-watt floodlights | | | | 40 | 42 | | 32 | 34 | | 24 |
| Total number of poles (Half on each side of field) | | | | 8 | 6 | | 8 | 6 | | 6 |
| Floodlights per pole | | | | 5* | 7/ | | 4* | 6/ | | 3* |
| Total load (kw) for 10 per cent overvoltage operation (APPROX.) | | | | 70 | 73 | | 56 | 63 | | 42 |

* 1. Floodlight recommended: G-E Novalux, Type L-48, with etched Alzak-finished aluminum reflector, or Type L-45 floodlight with porcelain-enamel reflector.
/ 2. Floodlight recommended: G-E Novalux, Type L-48, with polished Alzak-finished aluminum reflector.
3. Mazda lamps: 1500-watt general-service, PS-52 bulb, voltage rating selected so that socket voltage will be approximately 10 per cent higher than rated voltage of lamp. Clear-bulb lamps are recommended in general. For the minimum installations, because of the small number of floodlights used, inside-frosted lamps are recommended to spread the beams for satisfactory uniformity.

*Recommendations for Lighting 6-Men and 11-Men Gridirons*

The mounting heights of the floodlights will vary with conditions. Adequate mounting heights are important because floodlights mounted too low do not produce efficient or effective illumination, and spotty or glaring illumination often results. The most damaging result of improper mounting heights and inadequate levels of lighting is to the spectator—*whose reactions determine the success or failure of sports lighting.*

Heavy-duty steel poles, wood poles and fabricated steel towers find use in athletic field lighting. The continued success of sports lighting over a period of ten years has definitely proved the advisability of permanence, with the result that steel poles, which are now available in heights to satisfy most requirements, are rapidly finding favor for this application. Tubular steel poles lend themselves nicely to underground wiring systems, which are now common, and contribute to the permanence and appearance of an installation. Where the poles are installed between the seating facilities and the playing field, it is desirable to keep the poles as small as possible. Steel poles for comparable heights are smaller than wood and less objectionable than fabricated steel from the standpoint of obstructing the view.

## Adjusting Floodlights

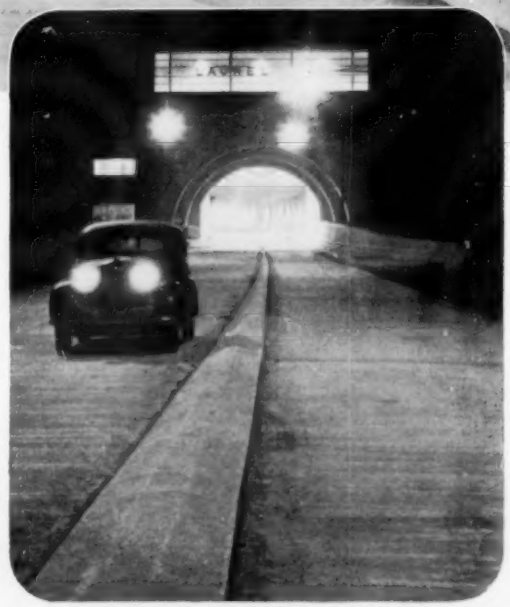
Adjusting the floodlights is simply a matter of fanning out the beams for uniform coverage and placing the upper edges of the beams at the opposite sidelines of the playing field.

After all the floodlights are adjusted, the vertical repositioning stop which makes the servicing of the floodlight more convenient, should be adjusted. Then the units can be re-aimed easily when it becomes necessary to change their position for lamp replacement or cleaning.

It is strongly recommended that a systematic maintenance plan be established when the installation is first placed in service. This plan should include periodic cleaning of reflectors, checking of adjustments, and replacement of burned-out or blackened lamps.

Write for diagrams of pole locations, mounting heights and wiring.

# WESTINGHOUSE LIGHTS TURNPIKE for *Visibility-Safety*



The nation's new "Dream Highway" . . . the 160-mile, Pennsylvania Turnpike . . . is lighted to new levels of visibility-safety by Westinghouse with mercury, sodium, incandescent and fluorescent lighting equipment.

At Turnpike terminals . . . tunnels and tunnel approaches . . . traffic interchanges . . . entrance ticket offices . . . gasoline service stations . . . Westinghouse lighting heralds a major advance in the "science of seeing" for motorists' comfort and safety. Illumination in the super highway's seven tunnels is as spectacular as it is effective. It marks the first use of High Intensity Mercury lighting in tunnels and also the first time four footcandle intensities have been attained in such an application.

Engineering counsel and information on Westinghouse TRAFFIC SAFETY LIGHTING for streets, highways and bridges is always available, whether the job is large or small. See your nearest Westinghouse Lighting Specialist, or write the Lighting Division, Westinghouse Electric & Mfg. Co., Edgewater Park, Cleveland, Ohio.

Illumination in the 6.7 miles of tunnels is provided by 1,060 Westinghouse flush-mounted mercury units. Tunnel approaches are lighted by 321 sodium vapor luminaires.

Tune In "Musical Americana," N. B. C. Red Network, Coast-to-Coast, every Thursday evening.

**Westinghouse Lighting Equipment**

During November we hope you will remember to mention THE AMERICAN CITY.

# Bright Alameda Will Relight All Streets

FOR many years Alameda, Calif., enjoyed the reputation of being one of the best-lighted cities in the United States; the reason for this being that we have the same type of lighting on all our streets, and all streets are lighted regardless of location. This is far from the practice in the majority of cities, where, as a rule, the main streets are well lighted and the residential streets have few if any lights.

The electroliers used in the city of Alameda were designed and manufactured by our own Utility Department, and for many years have given us good service. In recent years, street-lighting standards have changed and street-lighting equipment has been so improved that it is now possible to install new lights and obtain much greater efficiency.

Two years ago we realized that the lighting on our main arteries was not bright enough to make our streets safe with the increased traffic. A committee from our local Planning Board and Public Utilities Board investigated street lighting in other cities in this area in an endeavor to establish a standard for our city. This committee recommended to our City Council that three types of lights be used for replacing and for future installations. The types recommended are all of the same general design, so that when the lighting program is finally completed it will not be a hodgepodge of various types of electroliers, but will be uniform throughout the city.

The three types recommended are 15-foot uprights for the residential area, 18-foot uprights for semi-residential areas, and 20-foot pendant type for the main arteries, which carry most of the traffic. These types were adopted by the City Council for all future installations.

We have adopted the policy of replacing approximately $20,000 worth of street lighting each year, which we plan to continue over a period of years until all our streets have been modernized. In carrying out this plan, we are first replacing lights on streets having the heaviest traffic. The entire program will probably take in the neighborhood of ten years to complete. In this way we are able to complete the program without a bond issue or without an increase in our tax rate.

During the last fiscal year $37,000 was spent to replace lights on two main arteries and in two new subdivisions just opened. This money was spent for the actual cost of the lighting standards, cable, and miscellaneous expenses, since most of the labor was furnished by the WPA. Our budget for this year contemplates the expenditure of approximately $20,000 for street lighting, and plans are now being prepared and traffic counts taken to determine the location of this improvement.

I am a strong believer in the pay-as-you-go method of financing improvements of this type whenever it is possible to do so.

CHARLES R. SCHWANENBERG,
City Manager, Alameda, Calif.

## *Handsome Lighting in San Diego*

A NEW LIGHTING SYSTEM adds to the beauty and safety of El Cajon Boulevard in San Diego, Calif. The system employs ornamental poles with graceful bracket arms from which are suspended the modern General Electric luminaire which prevents the illumination from escaping skyward. The light is directed toward the highway pavement by a scientifically designed reflector and refractor globe. The results are more pavement illumination and better night visibility for motorists and pedestrians.

The luminaire standards are installed in a center strip which divides El Cajon Boulevard. At the intersections between the center islands one light is directed toward the northbound traffic, while the other light is directed toward the southbound traffic. Each luminaire burns a 1,500-watt incandescent lamp. (See views below.)

## *Modern Ideas on Christmas Lighting*

GOOD PRACTICE in Christmas street lighting and floodlighting, to get the cheeriest and most breathtaking effects, will be discussed and illustrated here next month.

To help Santa Claus find the house numbers, some top facts about residential-district lighting will also be given in the December, 1940, issue of THE AMERICAN CITY.

*1,000-lumen lamps hung from 4-foot brackets at top of 25-foot cast-iron poles spaced about 100 feet apart at intersections and 250 feet apart between them in San Diego, Calif.*

# NASSAU COUNTY POLICE CHOOSE NEW *Western Electric* TRANSMITTER

## Patrol Cars, Motorcycles, Boat and Airplane served in Long Island Area

Policing thickly populated Nassau County demands speed *and instantaneous, reliable communication.* Since 1933, the County Police have used Western Electric Radio.

The *new* Western Electric 1000 watt transmitter recently installed serves all Nassau County territory, State Police in Nassau and Suffolk Counties.

To make the force even more effective, Western Electric 28A transmitters are installed in 12 of its 81 cars. Two-way Western Electric equipment is also used in a Police Airplane and Police Boat. Last year, 56,000 calls were put on the air.

Western Electric offers you all types of Police Radio systems built to stand up under constant service. Get details on the right equipment to solve *your* problems. Write Graybar Electric Company, Graybar Building, New York. In Canada: Northern Electric Co., Ltd., Montreal.

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**Western Electric**

Distributed by GRAYBAR Electric Co. In Canada: Northern Electric Co., Ltd.

POLICE RADIO TELEPHONE EQUIPMENT

## CUT MAINTENANCE COSTS 75%

**Concrete slab maintenance costs can be reduced as much as 75% by the Koehring Mud-Jack Method. The Koehring Mud-Jack raises sunken concrete . . . walks, curb and gutter, driveways, streets, highways, etc., eliminating reconstruction costs. Write for the new Mud-Jack Bulletin illustrating applications and describing the Mud-Jack Method.**

KOEHRING HEAVY DUTY

**KOEHRING COMPANY**
**MILWAUKEE • WISCONSIN**

**MUD-JACK METHOD**

## STEWART FENCES *for all Public Property*

City officials everywhere are selecting Stewart Iron and Wire Fences to beautify and protect public property. They know Stewart Fences provide lifetime protection at the lowest per year cost.

Other Stewart Products for public property uses comprise: Settees, steel folding chairs, wire mesh partitions, trash receptacles, flag poles, bronze plaques and many others. When writing for information, please mention products in which you are interested. Sales and erection offices in principal cities.

Stewart FENCES

Catalog No. 79, showing typical installations specifications, construction details, sizes, materials, spacing and other important information, will be sent on request.

**The Stewart Iron Works Co., Inc.**
**721 Stewart Block Cincinnati, Ohio**

Stewart IRON and WIRE FENCES

"World's Greatest Fence Builders Since 1886"

# Improving Municipal Administration

Current Items from the Public Administration Clearing House

## *Municipalities Take Steps to Guard Against Sabotage*

MUNICIPAL PLANS FOR GUARDING AGAINST SABOTAGE are in formulation in a number of cities, reports to the American Municipal Association show. While the police department is the usual agency organized for this duty, in some cases the cities are mobilizing other efforts to protect such vulnerable points as industrial plants, the municipal water supply and bridges.

Duluth, Minn., has set up a school of training for watchmen in all industrial plants within a 75-mile area. Duluth police are instructors. Monthly meetings bringing together the industrial leaders of Duluth and Superior are being planned for the purpose of discussing matters concerning defense with the various law-enforcement agencies.

The Director of Safety of Philadelphia has announced plans for special instruction of more than one-third of the local police personnel in handling sabotage. For the time being, the men selected for this special duty will continue with their regular police duties.

In Chicago the Police Department has listed 674 vulnerable points throughout the city for protection against sabotage. Bridges and canals, ports and wharves, light and power plants, banks, armories, cribs and water works, radio stations and telephone exchanges are included. Commanders of the city's six major police divisions have special plans under way to cooperate with the police heads of the city's 41 precincts, for protection of these locations.

In Connecticut, where police plans for the emergency are under direction of the State Police Commissioner, police heads of the eight counties are surveying all manufacturing plants, public service companies, gasoline storage places and other points where sabotage may be anticipated. New York City has gained an emergency declaration closing the city's watersheds, which extend through several counties, to prevent sabotage through such channels. The mandate, signed by the Governor, extends to March 31, 1941. New York City and Newark, N. J., will soon have "bomb taxis" to carry packages suspected of being infernal machines out of the danger area. The Newark carrier is described as a trailer with floors and sides lined with sand bags, and a top of thin wood through which an explosion, if one does occur, may spend its force.

State and local law-enforcement officers and industrial-plant and public-utility executives can obtain from the Federal Bureau of Investigation a manual of protective measures against sabotage. The manual is confidential, each copy must be registered, and it remains Government property.

## *Fort Worth Finally Adopts Zoning*

FORT WORTH, TEXAS, one of the few remaining large cities in the country which have been without a zoning ordinance, now has such an ordinance by unanimous action of its Council last month, the American Society of Planning Officials reports. Among other provisions, the ordinance prevents the construction of "garage apartments" in the rear of lots. It also contains a provision ordering the elimination of non-conforming billboards in residential districts within three years.

Fort Worth attempted adoption of a zoning ordinance twelve years ago, but it was turned down because of opposition of citizens.

## *Long Beach Trains Janitor-Applicants*

A SHORT COURSE FOR CANDIDATES for municipal janitor and porter jobs, giving them a chance to brush up for a municipal civil service examination and at the same time pre-training them for their special tasks, was successfully tried recently in Long Beach, Calif., as reported by the Civil Service Assembly of the United States and Canada.

Approximately 60 persons took the 22-week part-time course, which was offered by the Long Beach Civil Service Commission through the city's adult education department. Candidates studied tools and materials used by janitors, types of floor and furniture waxes and methods of application, cleaning of fixtures, removal of stains, etc.

After the course was over, performance tests were given in which applicants demonstrated their ability to sweep, dust, wax floors, clean fixtures and mop. Civil service examiners followed the various steps, each of which had to be carried through by the candidates within a specified time.

## *States Lack Adequate Firearms Laws*

PRESENT STATE LAWS covering the possession, sale and control of firearms place few deterrents in the way of criminals or subversive groups who may desire to accumulate weapons, a survey by the International Association of Chiefs of Police discloses. The majority of the statutes deal primarily with small firearms—pistols, revolvers, sawed-off shotguns and rifles—and are aimed mainly at preventing the carrying of concealed weapons by criminals. Aside from hunting-license requirements and laws forbidding the possession of firearms by aliens, the survey finds that rifles and shotguns are generally easily obtained and transferred.

Practically all the states attempt to regulate the carrying of firearms. A few states—Illinois, Kansas, Ohio and Wisconsin—flatly prohibit carrying concealed firearms on the person. Some states modify that flat prohibition, while others require a license or permit to carry firearms. Most of the latter states require a license only if the weapon is carried concealed on the person, but six of them require a license to carry a firearm either concealed or openly. The survey found that fifteen states require a license to carry firearms in a motor vehicle.

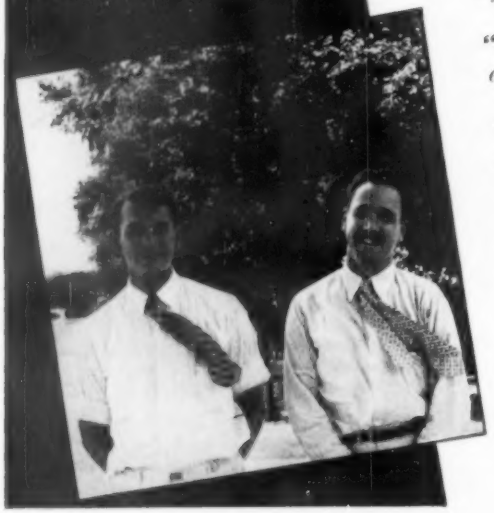
"All but ignored in present laws" is the requirement of a license to possess or purchase firearms, according to the survey. It added that the uniform firearms act adopted by five states and the District of Columbia does provide for "a fairly complete" record of all purchases of small arms.

Only thirteen states and the District of Columbia require retail dealers to have a license to sell firearms and to keep specified records of their transactions. Fourteen other states require the records but not the licenses. Seven states expressly provide for the regulation of wholesalers. Four states—Michigan, New Jersey, New York and Rhode Island—at present require the fingerprinting of applicants for licenses.

The possession of any firearm by an alien is prohibited in Nebraska, Utah, West Virginia and Wyoming. The majority of the states have no legislation covering the use of firearms by aliens, according to the survey. Most states which have such laws prohibit the possession or carrying of firearms concealable on the person, with little attention to possession of other firearms.

*Successful Municipal Management*

# DEMANDS DEPENDABLE SOURCES OF SUPPLY



*(Left) Harry W. Rhodes, Pool Operator, and (Right) Harvey L. Vincent, Town Engineer, of Greenbelt, Md.*

*Harvey L. Vincent, Town Engineer of the Town of Greenbelt, Maryland, says:*

*"We have been using HTH in several ways since our operations started in 1938.*

*"We keep a good supply of this product on hand and consider it a stand-by source of chlorine in case we encounter any trouble with the chlorination equipment at either the swimming pool or the sewage treatment plant.*

*"We also use your liquid chlorine for sewage treatment plant operations, and are glad to take this opportunity to express our appreciation of the good service which your organization has given us. Dependable sources of supply are an important asset in the successful management of community and municipal services."*

● Greenbelt, Md. typifies the modern suburb. And its Town Engineer, Mr. H. L. Vincent, expresses the modern point of view in his appreciation of Mathieson sanitation service. Trouble-free containers and valves, and prompt delivery service, keep Mathieson Chlorine in tune with modern ideas of efficiency. HTH offers a dry, free-flowing chlorine carrier delivering over 70% available chlorine—quick, handy sterilizer for many special and emergency jobs.

Greenbelt's community swimming pool and surroundings are also kept sanitary the modern, efficient way—with Mathieson Chlorine and HTH.

But most of all, you will appreciate —as do hundreds of other sanitary engineers—the dependability of Mathieson as a source of supply, a dependability established for nearly fifty years.

*HTH comes in 5 lb. cans with replaceable caps, packed 9 cans to the case; also in 75-lb. drums.*

THE Mathieson Alkali Works (INC)

60 EAST 42ND STREET, NEW YORK, N. Y.

LIQUID CHLORINE . . . HTH . . . SODA ASH . . . CAUSTIC SODA . . . BLEACHING POWDER . . . BICARBONATE OF SODA . . . AMMONIA, ANHYDROUS and AQUA . . . PH-PLUS FUSED ALKALI . . . DRY ICE . . . CARBONIC GAS

Prepared by
FRANK B. WILLIAMS
Author of "The Law of City Planning and Zoning"

# Zoning and Planning Notes

With the cooperation of
EDWARD M. BASSETT
Author of "Zoning" and of "The Master Plan"

## Zoning—Undeveloped Territory

CALIFORNIA.—*Acker v. Baldwin*, 101 P. 505 (Dist. Ct. of App., 3d Dist., April 6, 1940). This is an action for a declaratory judgment with regard to a county zoning ordinance and plaintiff's right to conduct a plumbing business in the area. The Court upheld the ordinance and refused to allow plaintiff to continue in his business.

The area in question is about four square miles in extent. It is surveyed into lots and streets. Within its limits is a business section. The area is sparsely settled. There were a number of non-conforming uses in it. The ordinance placed 80 per cent of the area in a single-family district. The Court states, as a reason for its action, that zoning looks to the future and not to the past, citing many decisions and dicta in accord.

EDITOR'S NOTE.—This case should be read in connection with the Arverne case (*Arverne Bay Construction Co. v. Thatcher*, 253 App. Div. 286, Court of Appeals, May 24, 1938, reported in our Notes for May and July, 1938.) The law in the two cases is the same, the more or less similar facts causing the two courts to reach opposite conclusions, in so far as the rights of the litigants were concerned. The question in each case may be stated as not *whether*, but to *what extent* it is reasonable, and therefore lawful under the police power, in undeveloped areas, for the provision of a zoning ordinance to "look to the future."

## Zoning Ordinance—Retail District—Sales to Other Dealers—Killing of Fowl on Premises

MASSACHUSETTS.—*Petros v. Superintendent of Buildings of City of Lynn*, 28 N. E. 2d, 253 (Supreme Court, June 28, 1940). —This is a petition by the owner of adjacent property to compel the revocation of an occupancy permit. The building is in a "business district." Among other uses, retail stores are permitted. On the premises live fowl were killed by sticking each with a knife, and sold to retail meat markets and directly to consumers. The business was not a nuisance.

*Held* that the permit should not be revoked. The activity is as closely akin to a business as it is to an industry. It is a "retail store," where "retail trade" is carried on. There is some selling to other stores, the amount of which in comparison with direct sales to individual customers does not appear. Even if it is a considerable part of the total business, it does not necessarily deprive the business as a whole of the quality of a retail business. The words "wholesale" and "retail" are commonly defined not with primary emphasis upon the difference between sale to an ultimate consumer and sale to one who intends to resell, but rather with reference to the difference between selling in small quantities and selling in large quantities in bulk.

A doubt arises from the fact that the killing is a part of the business. But this is not decisive in favor of the petitioners. Preparation of articles for delivery is a common incident of many retail businesses. Fish are cleaned or even killed in a fish market. Accessory uses are permitted by the ordinance. It is a matter of common knowledge that fowl are often killed and dressed by poultry dealers in connection with retail sales. No such widespread practice exists with respect to cattle or swine. The killing at the store does not quite turn the store as a matter of law into an abattoir or stockyard.

## Zoning Ordinance—Property Values

MASSACHUSETTS.—*Tranfaglia v. Building Commissioner of Winchester*, 28 N. E. 2d, 537 (Supreme Court, July 8, 1940).—This is a proceeding by Giovanni Tranfaglia and others for a writ of mandamus to compel the Building Commissioner of the town of Winchester to grant him a permit for the construction of a bowling alley in a residential district. In defense the Commissioner urged, among other considerations, a provision in the ordinance forbidding, in certain districts, a use "harmful to property" therein.

The Court says with relation to this provision:

"The avowed purpose of zoning legislation is the protection of 'the health, safety, convenience, morals or welfare' of the community. It is not designed for the preservation of the economic value of property except in so far as that end is served by making a community a safe and healthy place in which to live."

## Gasoline Service Station—Use Within Given Distance of Another Use

NEW JERSEY.—*Atlantic Refining Co. v. Tp. Committee of Hadden*, Tp., 14 Atl. 2d, 786 (Supreme Court, August 8, 1940). —The Atlantic Refining Company is seeking a permit for the erection of a gasoline service station. The permit was derived solely because of a provision in the ordinance of the township regulating the operation and maintenance of such structures, forbidding them within 500 feet of a similar structure. There is no zoning ordinance in the township, and therefore no question of the suitability of the land in question for the desired use at the desired location is involved except that the location is within 500 feet of another gasoline station.

At the trial statistics were offered in evidence relating to the fire experience of this and three adjoining municipalities, and the effect of the erection of the proposed station on insurance rates upon property immediately adjacent thereto.

*Held* by the Court that the evidence could lawfully be introduced; and that the 500-foot provision was unreasonable and not within the police power of the township, since the fire risk did not justify it.

## Zoning Ordinance—Non-Conforming Use—Farming—Stable and Riding Academy

NEW JERSEY.—*Berry v. Recorders Court of Town of West Orange*, 11 A. 743 (Supreme Court, March 18, 1940).—Use of premises for a riding academy and stable is not a continuation of a farming use, with incidental employment of horses in furtherance of farming.

## Garage—Gasoline Station Non-Conforming Use—Change—Enlargement

NEW JERSEY.—*Lion Building and Loan Association v. City of Plainfield*, 10 A., 2d, 473 (Supreme Court, January 16, 1940). —The Board of Adjustment had refused a permit for the removal of 30 feet from the front of a garage, and the installation in connection with it of a drive in gasoline stations. The garage, including the sale of gasoline in it, was a lawful non-conforming use, and the ordinance allowed structural alterations for a change from one non-conforming use to another, but did not permit enlargements.

*Held* by the Court, reversing the Board of Adjustment, that the proposed operation was a change, and not an enlargement, and therefore permissible.

## Parochial Difficulties—Unnecessary Hardships

NEW YORK.—*Van Elm v. Zoning Board of Appeals of Village of Hempstead*, 17 N. Y. S. 2d, 548 (Supreme Court, Appellate Div., January 29, 1940).—This is a proceeding for a review of a variance granted by the zoning board to change a one-family to a two-family house, in a residence district in which two-family houses are prohibited.

The memorandum of decision by the Court is, in part, as follows:

"There was no factual basis upon which a variance could be granted as for undue hardship and practical difficulties. Neighboring violations of the zoning ordinance did not constitute practical difficulties or unnecessary hardship."

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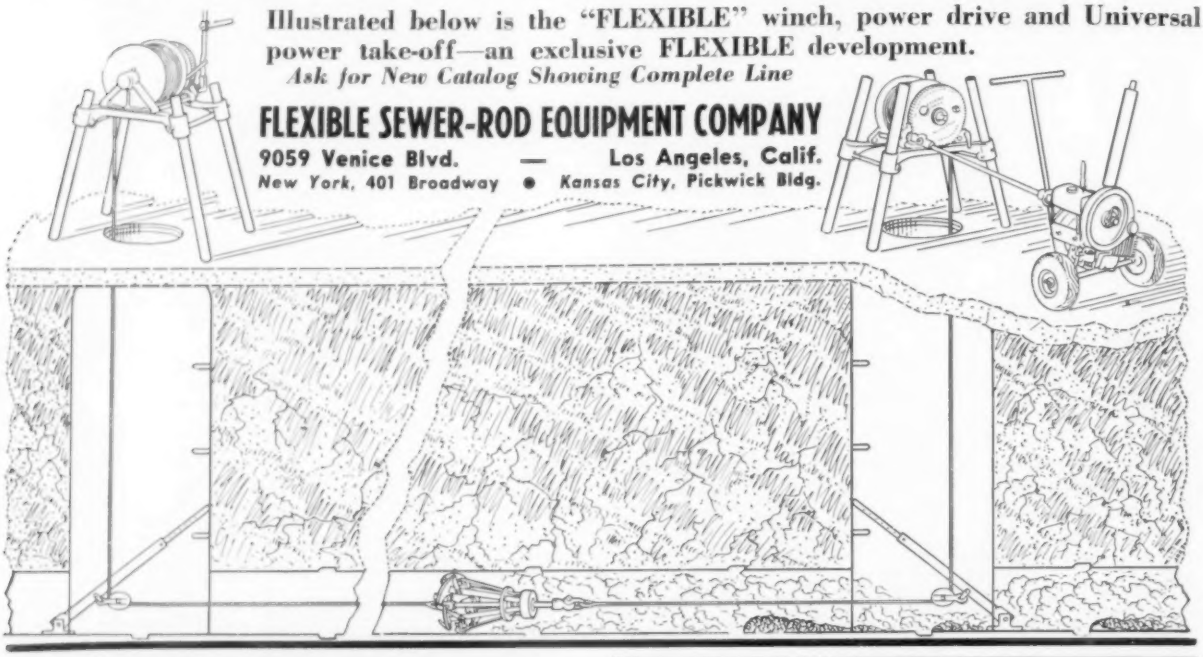

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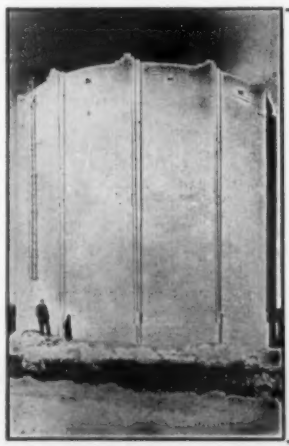

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# Municipal Law Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS, Washington, D. C.
JOHN A. McINTIRE and CHARLES S. RHYNE, Legal Counsel

## Selective Service and Municipalities

Many city councils now have pending before them proposed ordinances providing for payment, by the city to city employees who are drafted or who enlist for Federal National Defense service, of the difference between the salary paid such employees by the city and the salary received from the Federal Government as compensation for service to it. Other proposed ordinances provide for preservation of civil service seniority or other employment rights of city employees who are drafted or who enlist in the Federal military forces. The primary problems raised are twofold:

1. Is the expenditure of local funds for this difference in compensation to city employees who are drafted or who enlist in Federal military service an expenditure for a public purpose, or is it an illegal donation or grant of public funds for the benefit of private persons?

2. Do the cities have legal power to provide for such ordinances?

In considering these questions in the light of decided cases several conclusions are suggested:

1. The expenditure of local funds for the purpose of compensating persons absent from local service by reason of Federal military activities is generally considered a public purpose. So also is the granting of a preference to persons returning from such service, or the preservation of such persons' local employment rights.

2. Where a state enabling act grants such power, a city would therefore have authority to provide for such compensation and preferences. The implied power of a city, however, to provide, without the benefit of a state enabling act, for compensation of employees while engaged in National Defense service is doubtful but a debatable proposition.

3. Some state constitutional provisions against the granting of public funds for private purposes have been interpreted so as to raise doubt as to the validity of such legislation, contrary to the general conclusion prevailing elsewhere. It appears, however, that these interpretations are misconceptions rather than proper constructions of the constitutional provisions involved.

4. There is practically no doubt of the power of a state or local subdivision to cooperate with the Federal program in this as well as in other matters. The existence of a Federal program and the fact of paramount control by the National Government does not preclude the use of state or local powers in this connection.

The following references furnish useful background material as to the public purpose question involved. Note, *Constitutionality of Statutes Providing for Bounty or Pension for Soldiers*, 7 A.L.R. 1636; *Butler* v. *Putney*, 43 Vt. 481 (1871); *State ex rel. Bates* v. *Richland*, 20 Ohio St. 362 (1870); *Comer* v. *Folson*, 13 Minn. 219 (1868); *Wilson* v. *Buckman*, 13 Minn. 441 (1868); *Bradhead* v. *City of Milwaukee*, 19 Wis. 624 (1865); *Winchester* v. *Corinna*, 55 Me. 9 (1866); *Speer* v. *Blairsville*, 50 Pa. 150 (1865).

*Contra:* as to soldiers in Federal Army see *Bowles* v. *Landaff*, 59 N. H. 164 (1879); *Willoughby* v. *Holderness*, 62 N. H. 227 (1882). *Cf. Schackford* v. *Newington*, 46 N. H. 418 (1866).

See also 13 A. L. R. 587; 15 A. L. R. 1344 (bounties to soldiers).

On preservation of employment status, veteran's preference and similar problems, see generally, 16 A. L. R. 1409; 87 A. L. R. 1002; McQUILLIN, MUNICIPAL CORPORATIONS (2d ed.) S 480.

The case of *Henn* v *City of Mount Vernon*, 189 N. Y. Supp. 851 (Sup. Ct. N. Y. App. Div. 1921) is directly in point, upholding the validity of the New York statute providing for such measures with respect to municipal or state employees while engaged in Federal military service. The decision by the New York Court of Appeals in *New York* v. *Westchester National Bank of Peekskill*, 231 N. Y. 465, 132 N. E. 241 (1921), which involved a different statute and therefore did not overrule the Henn case, seems to be in conflict with that decision as to the interpretation of the state constitution of New York relating to the giving or loaning of the credit of the state to, or in aid of, any individual, association or corporation. The authority of the Westchester case, however, should be considered in the light of the dissenting opinion of Justice Cardozo, who points out the background and purpose of the constitutional amendment involved and concludes that the proper interpretation does not lead to the conclusion of unconstitutionality.

As to the matter of city-Federal cooperation, see the case of *McNichols* v. *City and County of Denver*, 72 P. (2d) 99 (Colo. 1938), sustaining the power of the city to buy land within the city and give it to the Federal Government to be used as a bombing school site.

## Administrative Action

A license or permit issued by an administrative official cannot condone or afford immunity for a violation of a municipal ordinance governing the subject matter. *Marcus* v. *Village of Mamaroneck*, 28 N. E. (2d) 856 (N. Y. 1940).

## Bidding—Disqualification for Interest of Councilmen

In a taxpayer's suit to restrain the city from awarding a contract to the selected bidder because of disqualification of members of the City Council of Rockford, Ill., with respect to that contract, the Court held that interest in the contract in order to disqualify an officer must be certain and definable and of a pecuniary or proprietary nature. The fact that Councilmen had remote business relations with the successful bidder was not sufficient disqualification. *Panozzo* v. *City of Rockford*, 28 N. E. (2d) 748 (Ill. 1940).

## Civil Service—Municipal and State Systems

The Civil Service Commission of Bellefontaine, Ohio, under the state law providing for municipal civil service commissions, had discretionary power to determine by resolution that a maximum of five points for efficiency and of ten points for seniority could be added to the grade received by each applicant. *Underwood* v. *City of Bellefontaine*, 28 N. E. (2d) 663 (Ohio, 1939).

## Contracts—Refunding Agreements—Mutuality

A contract to employ a foreign corporation to refund a bond issue is not binding on a city. For this reason such a contract is lacking in mutuality and cannot be enforced by the city. *City of Vero Beach, Fla.* v. *Rittenoure Inv. Co.*, 113 F. (2d) 269 (C.C.A. 10th, 1940).

## Dogs—Licensed Kennels—Right to Maintain

Under a statute authorizing the selectmen of a town to make any appropriate order as to dogs complained of as nuisances, the selectmen are not authorized to make an order interfering with the operation of kennels. If a kennel is a nuisance, relief may be obtained by court procedure. The statute as drawn relates only to complaints as to specific dogs and not the dog-raising business. *Scudder* v. *Town of Greenwich*, 14 A. (2d) 728 (Conn. 1940).

## Foreign Trade Zones Private Operation

New York City's contract for the operation of a Federal Trade Zone by a private corporation is held invalid. The city maintains the zone under a Federal grant, and the Court in considering the argument to that effect held that the taxpayer's suit to enjoin operation by the private corporation was not a suit against the United States. The Court did, however, find that the contract was in violation of the administrative code and also was an improper grant by the city to a private corporation of property held by it for a public use. *American Dock Co.* v. *City of New York*, 21 N. Y. S. (2d) 943 (1940).

## Housing—Local Authority

Allegations that the slum-clearance program planned by the Housing Authority of the city of Spartanburg, S. C., was not such a project as was contemplated by the Federal and state legislation, and that the taxpayers would not be able to compete with the Housing Authority in the matter of providing homes, were not sufficient to warrant enjoining the local housing authority from functioning, since governmental competition with owners of private business does not constitute legal damage even though it injures their business. *Woodworth, Mayor* v. *Gallman*, 10 S. E. (2d) 316 (S.C. 1940).

## Markets—Streets—Abutting Owners

While the city of New York may deny the use of the streets for market purposes, it may not permit such use by some persons and deny the privilege to others similarly situated. Abutters in the upper stories of buildings adjoining streets used as markets held to have the right to sell fish on street stands. *Russo* v. *Morgan, Comm'r of Market of City of N. Y.*, 21 N. Y. S. (2d) 637 (N. Y. Sup. Ct. 1940).

## Officers—Color of Authority

Where a teacher allegedly employed by two of three school directors knew that one of two such directors was not qualified for his position when elected, the teacher cannot recover compensation even though the unqualified director as to other persons is properly treated as a de facto officer. While an officer de facto is properly so classified if he exercises the duties of the office under "color of authority," if the public or specific persons are not deceived by the appearance of authority the rule validating the acts of officers de facto does not apply. *Alleger* v. *School Dist. No. 16, Newton County*, 142 S. W. (2d) 660 (Mo. 1940).

## Police Power—Advertising Signs

A regulation by the city of New York prescribing the size of signs on gasoline pumps advertising the price, etc., was held valid as to the part requiring the display of such signs on the pumps, but was held invalid as to its prohibition of any other form of advertising display. *People* v. *Arlen Service Stations, Inc.*, 21 N. Y. S. (2d) 1006 (N. Y. Sup. Ct. 1940).

## Streets and Highways—Coasting

That the city of Bristol, Conn., permitted coasting upon one of its streets did not of itself as a matter of law render the city liable to a person injured by an unknown coaster upon the theory that the city created a nuisance. *Bagni* v. *City of Bristol*, 14 A. (2d) 716 (Conn 1940).

## Tort Liability—Bridges—Guard-Rails

In affirming the lower court's award of damages against the city of Birmingham for the death of a five-year old child, the Court held that the duty of a city to maintain its streets and sidewalks in a reasonably safe condition includes the erection and maintenance of suitable barriers or guard-rails on bridges to protect the public from the danger of falling off. *City of Birmingham* v. *Whitfield*, 197 So. 666 (Ala. 1940).

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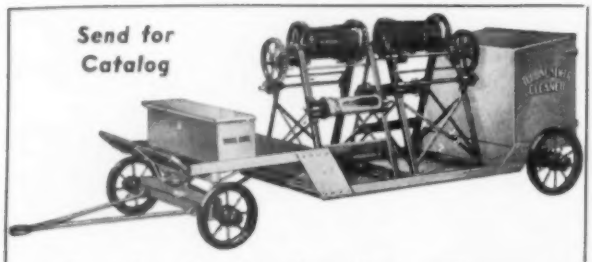

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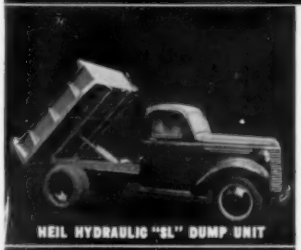

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# Municipal and Civic Publications

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## Defense Problems

*Wartime Control of Prices.—By Charles O. Hardy. The Brookings Institution, Washington, D. C. 1940. x + 216 pp. $1.00.*

Undertaken at the request of the United States War Department, this study considers methods of financing the present defense program and of controlling prices in a way to avoid the evils of inflation in past years. Part I investigates different types of price control: through fiscal and banking policies; indirect controls; selective controls; the machinery of control; control by fixing a price ceiling. Part II reviews price controls developed in the United States during the World War.

## Local Government Data

*Division of State and Local Government, Bureau of the Census.—Apply to C. E. Rightor, Chief Statistician of the Division, Department of Commerce, Washington, D. C. 1940. 6 pp. Free.*

The usefulness of the Division of State and Local Government has been increased during the last year by an expansion and improvement of its activities which are outlined in this circular. Besides its annual compilation of financial statistics of cities and states, the Division is conducting a state and local government employment survey, and studies of taxation, debt, proposals voted upon in elections, and state laws. The Division's Municipal Reference Service serves as a clearing house of municipal information, particularly in the field of finance.

## Roadside Planning

*Roadside Control.—Research Report No. 5. Research Division, Maryland Legislative Council, City Hall, Baltimore, Md. 1940. 66 pp.*

A systematic, thorough analysis of the roadside question is presented in this report. It outlines the problem; discusses the adverse effects of roadside development on rural scenery, traffic congestion, accident ratios, and property values; reviews available methods of roadside control for different situations—parkways and easements, limited-access highways and permits for access, regulation of specific uses like billboards and gasoline stations; and roadside zoning.

## Defense Personnel

*Published by the American Society of Landscape Architects, 9 Park St., Boston, Mass.:*

*The Landscape Architect and the National Defense. 1940. 1 pp.*

Outlines the place of the landscape architect in the national defense program, listing the type of project, with examples, for which his specialized training and education fit him. Summarizes the information on experience and availability of landscape architects collected by the recent survey of the profession.

*Summer Supplement to Landscape Architecture. 1940. pp. 2-8.*

More statements on the relation of the landscape architect to defense, such as their qualifications for USHA-aided projects, and fees for their services.

## Elections

*Democracy and Proportional Representation.—By F. A. Hermens, Associate Professor of Politics, University of Notre Dame. Public Policy Pamphlet No. 31; Harry D. Gideonse, Editor. Apply to the University of Chicago Press, Chicago, Ill. 1940. 42 pp. 25c.*

Does the proportional representation system of election fulfill the purposes of a democracy better than the majority system in common use in this country? This pamphlet analyzes the fundamental premises of both systems of election, and replies to this question in the negative. Illustrations from the use of P. R. abroad and in local government in this country are described in support of the principal arguments against the system, which it summarizes.

## Sewage Treatment

*Sewerage and Sewage Treatment.—By Harold E. Babbitt, Professor of Sanitary Engineering, University of Illinois, M. Am. Soc. C. E. Fifth Edition, John Wiley & Sons, Inc., New York. 1940. xx + 648 pp. $5.00 from* THE AMERICAN CITY.

This standard textbook on the design and construction of sewers and the treatment of sewage has been through successive editions in 1922, 1925, 1928 and 1932, to this present Fifth Edition. During the eight years since the last edition, some changes have occurred, notably in the field of financing by sewer rentals, which, unfortunately, is dismissed in 18 lines of text. In other respects the book has kept pace with the improvements in the art of sewage treatment and sludge disposal and has noted the increase in the use of mechanical equipment and the return again to chemical treatment for improved clarification of sewage at treatment plants.

## Sewerage Research

*Two publications of the Graduate School of Engineering, Harvard University, Cambridge, Mass.:*

*Effects of Marine Mud Upon the Aerobic Decomposition of Plankton Materials.—By Charles E. Renn. Reprinted from* Biological Bulletin, *June, 1940. 10 pp.*

Describes experiments on: (1) the adsorption by marine muds of soluble nitrogenous organic materials of plankton origin; and (2) the effect exerted by muds on the rates or efficiency of anaerobic bacterial decomposition of plankton materials.

*Analysis of the Biochemical Oxygen Demand Curve.—By Harold A. Thomas, Jr. Reprinted from* Sewage Works Journal, *May, 1940. 10 pp.*

Describes a method of computing the lag period and probable errors of the constants in the equation of the unimolecular reaction, and results of applying this method to a biochemical oxygen demand test.

## City Government Syllabus

*Municipal Government and Administration—A Manual and Syllabus.—By Russell H. Ewing, Assistant Professor of Political Science, University of Denver, Denver, Colo. 1940. 124 pp.*

An outline guide to the systematic study of city government, synthesizing the fundamental information, and integrating the thought content of some twenty volumes covering the field of municipal politics, government, and administration, and prepared after a study of outlines, manuals, bibliographies and syllabi used in fifteen leading universities. Questions and problems follow each chapter, and extended bibliographies are included. The twelve main parts cover: background of municipal government; federal, state and city relations; legal aspects; city politics, elections and civic organization; forms of city government; administration; finance; public works; utilities; social welfare; public safety; the administration of justice.

## Migrants

*Men on the Move.—By Nels Anderson, Director, Section on Labor Relations, Work Projects Administration, Washington, D. C. University of Chicago Press, Chicago, Ill. 1940. xiv+358 pp. $3.00 from* THE AMERICAN CITY.

The problem of the migrant—brought to public attention by "Grapes of Wrath"—is living and real in this popular but comprehensive coverage of the subject. What are the fundamental changes in our industrial and economic life that have brought about the emergence of the migrant? What kind of person is he? What are his problems, and what is his problem to the rest of the country? What can be done to relieve them? Although the Federal Government must, according to this author, take leadership in the program to relieve the migrant situation, the local community's place in the picture is reflected.

## Street Construction

*Convention Proceedings, 1940. American Road Builders' Association. Apply to the Association, National Press Building, Washington, D. C. xiv+894 pp.*

This well-packed volume contains reports, papers, and discussions on practically all phases of the highway construction industry and profession, ranging from non-technical discussions on public relations to highly technical subjects pertaining to soil mechanics, base construction, and other similar topics. The more than 100 papers and reports printed are arranged under the main divisions of the convention: Municipal; Planning; Public Relations; Airport; Highway Contractors; Manufacturers; County; Educational; Pan-American. Frequent illustrations and diagrams illuminate the text.

## Pipe Standards

*Supporting Strengths of Cast-Iron Pipe for Water and Gas Service.—By W. J. Schlick, Research Professor of Civil Engineering. Iowa Engineering Experiment Station, Ames, Iowa. 1940. 128 pp. Free.*

This bulletin reports an investigation conducted by the Station in cooperation with the Sectional Committee on Specifications for Cast Iron Pipe and Fittings of the American Standards Association. Combined with load calculations previously developed by the Station, it provides a means for the structural design of any line of cast-iron pipe subjected to both external load and internal pressure. Results were obtained by tests of different sized pipe under a range of loading conditions and internal pressures.

## Power-Plant Data

*Electric Power Statistics, 1939, and Supplement to Electric Power Statistics, 1939.—Federal Power Commission, Washington, D. C. 1940. 62 pp., 136 pp., respectively. 25c each.*

These publications give tables, charts and textual summaries of statistical data showing the production of electric energy, installed capacity of generating plants, consumption of fuel, and the movement of electric energy across state lines. The supplement gives more detailed and further subdivided data than the main report, and includes also information on amount and heat rate of different types of fuel used.

## Handling Traffic Cases

*Traffic Court Procedures, City of Houston.—Research Department, Houston, Texas. 1940. 15 pp.*

Before October 1, 1940, traffic violations in Houston were handled by the Corporation Court along with various types of misdemeanor cases. The system was cumbersome, slow and inefficient. There was much duplication of effort. On October 1, the city opened its new traffic court. The former procedure is outlined in this publication, with an analysis of each specification, pointing out deficiencies, and the revised procedure which gives reasons for changes.

## Development of Houses

*Steel Makes the Home.—American Iron and Steel Institute, 350 Fifth Ave., New York. 1940. 32 pp.*

The development of shelter from the sapling huts of lake dwellers in 12000 B. C. to the modern steel home has involved tremendous changes accelerated since the industrial revolution—changes in methods of construction, in permanence and invulnerability to destructive forces, in comfort and convenience, and in cost of upkeep. Besides stating the advantages of using steel in the construction of homes, this liberally illustrated and readable booklet sketches the development of houses—both exterior and interior—through the ages.

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## Boiler Standards

*I-B-R Testing and Rating Code for Low-Pressure Heating Boilers.—The Institute of Boiler & Radiator Manufacturers, 60 E. 42d St., New York.* 1940. 78 *pp.* 30c.

A revised edition of the Code of 1939, this publication presents a method for determining the accurate performance of boilers, which has been developed on a scientific basis by the cooperative effort of experts in the field. The four parts cover rating of boilers, testing of hand-fired and oil-fired boilers, and procedure for obtaining I-B-R ratings.

## Defense Housing

*Housing and the National Defense.—Philadelphia Housing Association, 1717 Sansom St., Philadelphia, Pa.* 1940. 16 *pp.*

Housing problems due to the increase in the number of workers in defense industries are and will be particularly acute in Philadelphia because this is one of the important centers for these industries. This clear, straightforward statement of the situation in Philadelphia gives a picture of the defense housing problem generally: what happened in the last war, what are present housing vacancies and the prospective housing shortage, what needs to be done by the local community, and how.

## City Dwelling Statistics

*Preliminary Announcement of Occupied and Vacant Dwelling Units for Specified Cities of 25,000 Inhabitants or More in 1940.—Bureau of the Census, Department of Commerce, Washington, D. C.* 1940. 3 *pp.*

In the 357 cities which this release covers, only 4.8 per cent of the 13,749,593 total dwelling units are vacant, although there is a wide range from city to city, of from 1 per cent to 36.2 per cent. For each of the cities, the total number of dwelling units is given, the number occupied, number vacant, and per cent of the total vacant. Number of occupied units of course represents approximately the number of families in each city.

## Government Survey

*Montgomery County Survey.—The Montgomery County Survey Board, Dayton, Ohio. Apply to Public Administration Service, 1313 E. 60th St., Chicago, Ill.* 1940. xx+530 *pp.* $3.50.

In 1938 the public schools were closed in Dayton, Ohio, as a result of a financial crisis. The Montgomery County Public Advisory Committee, with 9,000 citizen members, was organized to do something about the situation. The Committee raised enough money through voluntary contributions from citizens to make possible the survey of local government services in Dayton and Montgomery County, which is presented in this volume. It gives the report of the studies of the Survey Staff, and the Conclusions and Recommendations of the Survey Board based on these. Both Board and Staff were composed of experts. Although the school problem receives particular attention, the whole local governmental field is thoroughly examined.

## Health Department Report

*Advances in New York City's Health.—John L. Rice, M.D., Commissioner of Health, Department of Health, 125 Worth St., New York.* 1940. 296 *pp.*

It might be expected that a report of the extensive health program necessary for 7,000,000 people would consist of a mass of impersonal statistics. However, this illustrated report of the Department of Health of New York City for 1939 and review of developments from 1934 to 1939 is both readable and human. Accomplishments during the last six years include an extensive building program; a broad health-center program; campaigns against tuberculosis, syphilis and pneumonia; the improvement and extension of many other health services. Activities reported for the year cover three main sections of the Department: the Board of Health and administrative; medical, dental, nursing and bacteriological; and sanitary.

## Other Reports Received

ARK.—Arkansas Park, Parkway and Recreational Area Survey, 1940. Report by Arkansas State Planning Board, in cooperation with the State Parks Commission and National Park Service. Apply to the Board, State Capitol, Little Rock. 110 pp.

DETROIT, MICH.—Notes on a Conference for Measuring Juvenile Delinquency. Report of School of Public Affairs and Social Work of Wayne University. Published by the Detroit Bureau of Governmental Research, 5135 Cass Ave. 12 pp.

ESSEX FELLS, N. J.—Report of the Planning Board. 12 pp., 5 colored maps.

FLORIDA.—"Local Planning in the Southeast, and Coordinating Recreation in Florida." Proceedings of the Southeastern Planning Conference and the Florida Park and Recreation Conference at Hollywood, Fla., Dec. 4-7, 1939. Florida State Planning Board, P.O. Box 149, Tallahassee. 284 pp.

HARTFORD, CONN.—The Physical Condition of Housing in Hartford, Volume I of a Report prepared by the Housing Authority of the City of Hartford, based on the Real Property and the Low-Income Housing Area Surveys made by the Work Projects Administration, 1938-1940. 24 pp.

HARRISBURG, PA.—Annual Report, Chamber of Commerce, 1940. 22 pp.

HUNTINGTON PARK, CALIF.—Annual Report, year ended June 30, 1940. 34 pp.

ILL.—The Problem of Local Fiscal Control with Special Reference to Control at the County Level.—Sponsored by Representative Warren L. Wood. Research Department, Illinois Legislative Council, Springfield. 34 pp.

HANAPEPE, KAUAI COUNTY, HAWAII.—Master Plan. 16 pp.

MULTNOMAH COUNTY (PORTLAND), ORE.—Budget Facts and Financial Statistics for 1940. 88 pp.

WEBSTER CITY, IOWA.—Annual Report, City Manager, year ended Mar. 31, 1940. 68 pp.

# Conventions—When and Where

**November 12-13.—Pittsburgh, Pa.**
ENGINEERS SOCIETY OF WESTERN PENNSYLVANIA. (William Penn Hotel.) Chairman, H. M. Olson, 171 Longue Vue Drive, Mt. Lebanon, Pittsburgh, Pa.

**November 13-15.—Chicago, Ill.**
THE AMERICAN MUNICIPAL ASSOCIATION. (Congress Hotel.) Exec. Dir., Earl D. Mallery, 1313 E. 60th St., Chicago, Ill.

**November 13-15.—Omaha, Nebr.**
AMERICAN WATER WORKS ASSOCIATION—MISSOURI VALLEY SECTION. (Hotel Fontenelle.) Sec., Earle L. Waterman, Univ. of Iowa, Iowa City, Iowa.

**November 14-15.—Atlantic City, N. J.**
NEW JERSEY STATE LEAGUE OF MUNICIPALITIES. (Hotel Traymore.) Exec. Sec., James J. Smith, 808 Trenton Trust Bldg., Trenton, N. J.

**November 18-20.—Springfield, Mass.**
NATIONAL ASSOCIATION OF CIVIC SECRETARIES. Sec., Miss H. Marie Dermitt, Hotel William Penn, Pittsburgh, Pa.

**November 18-20.—Springfield, Mass.**
NATIONAL MUNICIPAL LEAGUE. (Hotel Kimball.) Sec., Howard P. Jones, 299 Broadway, New York.

***November 27-29.—Richmond, Ind.**
INDIANA MUNICIPAL LEAGUE. (Richmond Leland Hotel.) Exec. Sec., W. Vincent Youkey, Room 401, City Hall, Indianapolis, Ind.

**December 2-3.—New York City.**
AMERICAN SOCIETY OF MECHANICAL ENGINEERS. (Hotel Astor.) Nat'l Sec., C. E. Davies, 29 W. 39th St., New York.

**December 2-3.—Chicago, Ill.**
TAX POLICY LEAGUE. Symposium on Tax Barriers to Trade. (Palmer House.) Exec. Sec., Miss Mabel L. Walker, 907 Broadway, New York.

**December 2, Week of.—Washington, D. C.**
HIGHWAY RESEARCH BOARD OF THE NATIONAL RESEARCH COUNCIL. Dir., Roy W. Crum, 2101 Constitution Ave., Washington, D. C.

**December 3-6.—West Palm Beach, Fla.**
FLORIDA LEAGUE OF MUNICIPALITIES. (George Washington Hotel.) Sec.-Treas., E. P. Owen, Jr., 1707 Barnett National Bank Bldg., Jacksonville, Fla.

**December 9, Week of.—Dallas, Texas.**
THE ASPHALT INSTITUTE. M'ng Dir., J. E. Pennybacker, 801 Second Ave., New York.

***December 9-10.—New York City.**
SECOND JOINT CONFERENCE ON ROADSIDE IMPROVEMENT, sponsored by The National Roadside Council, the Conservation Committee of The Garden Club of America, The Roadside Development Committee of the National Council of State Garden Clubs and the American Planning and Civic Association. (Russell Sage Foundation and the National Arts Club.) Address: Exec. Sec., Miss Harlean James, APCA, 901 Union Trust Bldg., Washington.

***December 27.—New York City.**
AMERICAN WATER WORKS ASSOCIATION—NEW YORK SECTION. Luncheon meeting. (Commodore Hotel.) Sec., R. K. Blanchard, 50 W. 50th St., New York.

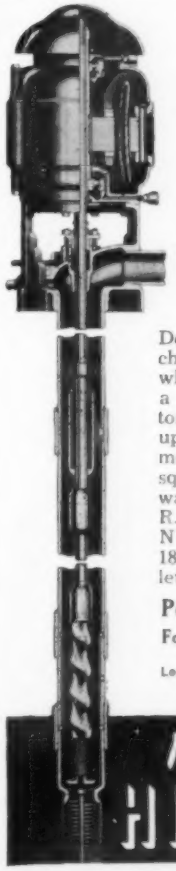
**January 14.—Cheyenne, Wyo.**
LEAGUE OF WYOMING MUNICIPALITIES. (Plains Hotel.) Exec. Sec., G. R. McConnell, Laramie, Wyo.

**January 24-26.—New York City.**
NATIONAL PUBLIC HOUSING CONFERENCE. Sec., Miss Helen Alfred, 112 E. 22d St., New York.

**January 27-30.—New York City.**
AMERICAN ROAD BUILDERS' ASSOCIATION. (Pennsylvania Hotel.) Engr.-Dir., Charles M. Upham, 952 Nat'l Press Bldg., Washington.

***June 22-26.—Toronto, Ont.**
AMERICAN WATER WORKS ASSOCIATION. (Royal York Hotel.) Sec., Harry E. Jordan, 22 E. 40th St., New York.

* First appearance of notice on this page.

LIFTING WATER

*a different way*

**Hypocycloidal motion of Peerless Hi-Lift Pump**

**—simplifies pumping**
**—increases pump life**
**—reduces power cost**

Designed with a hard-chrome helical rotor which revolves within a resilient, cutless stator bearing. This sets up a hypocycloidal motion which literally squeezes the water upward. Licensed under R. Moineau Patents, Nos. 2028407 and 1892217. Ask for Bulletin.

**Peerless Pump Division**
**Food Machinery Corporation**
Factories:
Los Angeles, San Jose, Fresno, Calif.—Massillon, Ohio.

*Peerless* HI-LIFT

# Solving Municipal Problems the Practical Way

Municipal officers face three big problems—and in cities all over the country Mimeograph duplicators are helping them find practical, economical solutions.

***Saving money***—because modern Mimeograph duplicators produce—at substantial savings—inspectors' reports, receipts, record cards, bulletins to employees, form letters, notices and warnings, and hundreds of other municipal requirements.

***Winning community support***—because the low cost of copies produced on the Mimeograph duplicator makes it possible to issue informational and educational reports to the public. These added services from administrative departments are great friendship-builders. Health, recreation, fire and police departments can win public good will this inexpensive way—with copies for all interested citizens, clubs, and organizations.

***Increasing efficiency and community service***, in many cases on lowered office budgets—because Mimeograph duplicators can turn out anything from police department bulletins to the mayor's annual report and save money while they do it.

Find out what Mimeograph equipment is doing to help municipal officers do a better job in a shorter time at a lower cost. Telephone the Mimeograph distributor in your city, or write A. B. Dick Company, Chicago, for complete details.

## Ways Typical Cities Use the Mimeograph Duplicator

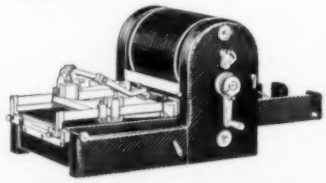
***Annual Reports*** of city and departmental activities for distribution to citizens, clubs, churches, and "key" organizations to win community support.

***Public relations bulletins***—included with tax receipts.

***Minutes***, specifications, examinations, bids, budgets—for various departments.

***Educational bulletins*** and public relations material for health, fire, and police departments.

***Forms***, bulletins, announcements and reports of all kinds for all departments—at substantial savings.



***Two members*** of the complete, streamlined family of Mimeograph duplicators are the Model 91 (shown here) and the Model 92 (in the picture above). Now working with municipal officers throughout the country on low cost solutions to municipal problems.

**FREE!** New booklet of practical suggestions to solve some typical civic problems. Clip and mail the coupon today for your free copy of ***The American City Speaks.***

# Mimeograph

MIMEOGRAPH IS THE TRADE-MARK OF A. B. DICK COMPANY, CHICAGO, REGISTERED IN THE U. S. PATENT OFFICE

A. B. DICK COMPANY, Dept. N-1140
720 W. Jackson Blvd., Chicago, Ill.
Send me a free copy of *The American City Speaks.*

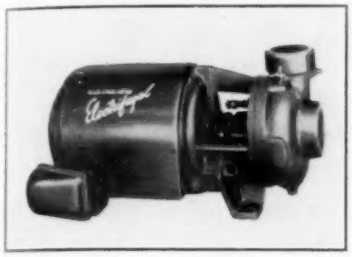
*Name*.....

*Organization*.....

*City*.....*State*.....

# News and Illustrations

**Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings**



*The New Allis-Chalmers Electrifugal Pump*

## Allis-Chalmers Announces New Centrifugal Pump

A new all-in-one centrifugal pump designed especially as a complete pump and motor unit on one shaft and one housing has just been announced by Allis-Chalmers Mfg. Co., Milwaukee, Wis. Instead of using standard motors having special end housings and shaft extensions, the "Electrifugal" pumping unit has a special motor with a one-piece cast iron motor yoke and pump bracket. The feet are cast integral with the housing and bracket and extend under the entire unit instead of under the motor only.

The motor design meets NEMA splash-proof specifications, but units having explosion-proof or totally enclosed, fan-cooled designs can be provided. The "Electrifugal" is available in sizes from 1 hp to 10 hp inclusive at 3,500 rpm and from ¾-hp to 7½-hp inclusive at 1,750 rpm for heads up to 160 feet. For normal service this new Allis-Chalmers unit is built with cast iron casing, bronze-fitted, but can be had in all iron, all bronze, all stainless steel, or other special metals to suit specific requirements. Bulletin B-6040 describing this new unit may be secured upon request to Allis-Chalmers

## Mechanical Joints Make Tight Water Lines

Tight joints on cast iron gas and water lines of bell-and-spigot pipe carrying up to 500 pounds pressure may be made with Carson mechanical joints. These joints, made by Carson-Cadillac Corporation, Birmingham, Ala., are featured by the use of C-60 charcoal iron bolts which eliminate the possibility of galvanic corrosion which is created in wet soil where metals of different electrical characteristics are used. When other metals than cast iron are used for bolts or glands in connecting cast iron pipe or for putting bell-joint clamps on old cast iron mains, the cast iron usually becomes cathodic and the other metal becomes anodic.

An interesting demonstration of the economy of Carson cast iron pipe joints is found in a contract job in Houma, La., where Brown & Root, of Houston, Texas, with J. B. Bell as construction superintendent, installed a long gas line. Mr. Bell, in commenting on the work, said: "My experience with mechanical joint pipe is that it is easily and rapidly installed. Some days on the Houma job we laid as much as 7,000 feet per day with two small crews of common laborers. No skilled labor is necessary. The only tool required is a ratchet wrench. In wet trenches we made joints under water without trouble. We saved time and labor costs, and our field tests showed tight joints under 100-pound air pressure."

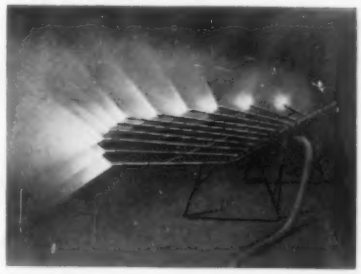
Complete information on Carson charcoal iron bolts for pipe joints, valves and leak clamps, and the Carson boltless coupling for ¾- to 2-inch pipe inclusive, may be secured direct from the manufacturer.

*The International Trojan Power Patrol Grader*

## A New Power Grader for Town and County

A power grader with hydraulic control and weighing only 8,800 pounds has been announced by Contractors Machinery Corporation, Clinton Street, Batavia, N. Y., as particularly adaptable for the maintenance of town roads and county highways for year-round service. This International Trojan Utility Patrol is powered with an International H or M tractor with a 10-foot blade mounted between the front and rear pneumatic-tired wheels. The blade is 14 inches high and ½-inch thick and has a ½ x 6-inch cutting edge. It can be raised to clear the ground by 9 inches and dropped 5 inches below the grade of the wheels, and can be swung 90 degrees.

The operator sits at the back of the machine and controls all blade movements, including the swing, by hydraulic power through "finger tip" levers at his right. The unit has five speeds forward ranging from 2½ to 16 miles per hour, is 15 feet long over-all and 76 inches high to the top of the steering wheel, with a rear wheel tread width of 64 inches.



*The Masbruch Manifold Skating Rink Spray*

## Safe, Quickly-Made Ice Skating Rinks

By simply setting the Masbruch manifold skating pond spray in position, connecting the hose to a convenient hydrant, turning on the water and moving the machine back and forth over a vacant lot, a skating rink that not only protects the lives of children who enjoy skating, but eliminates the need for land or lumber embankments, may be quickly obtained. A series of nozzles shoots out a thin spray which freezes as it hits the ground. The machine is moved back and forth over the area until about an inch of ice is built up, providing a glass-like surface. A roughened ice can be resurfaced in a couple of hours. Satisfactory skating rinks have been made by this method at temperatures as high as 25 degrees above zero.

Copies of a new bulletin describing the Masbruch manifold skating pond spray may be had by writing to Russell Mfg. Co., Dept. F3, Platteville, Wis.

## New Brushes for Sewage-Disposal Plants

According to E. I. du Pont de Nemours & Co., Wilmington, Del., municipal engineers have turned to Nylon to solve the problem of durable brushes for use in the fine screening of sewage. These brushes, which sweep across a highly abrasive drum-like filter screen, operate continuously in water and are subject to the action of distillate oil.

Nylon bristling material was first tried in Milwaukee's fine screening plant. After 5,100 hours of use, the Nylon brushes were carefully inspected and showed no signs of wear. Hog bristles had been wearing thin at the tips soon after installation, but the Nylon brushes, being made of a non-capillary material, wore straight across.

Nylon for bristling purposes is produced by the du Pont Plastics Department at Arlington, N. J., but the finished industrial brushes used in the Milwaukee plant were produced by the Schaefer Brush Mfg. Co. of Milwaukee, Wis.

# Whose Responsibility?

Burroughs makes available to every line of business information about new Burroughs machines and developments, and their application to current accounting problems.

**Who is responsible for keeping informed about new machines, features and applications that might save time, effort and cost in your office? Here are some typical savings that have been made by other municipalities:**

Through the use of Burroughs Tax Accounting Machines, a southern municipality eliminated 33⅓% of the work formerly required to render tax bills. At the same time, collections were greatly simplified.

A west-coast municipality attributes a rise of $215,000 in tax collections to the installation of a unit tax system using Burroughs Tax Accounting Machines.

The installation of Burroughs equipment in a midwestern city provides up-to-the-minute budget information that enables every department head to know, daily, how much money remains in his various accounts.

An installment tax collection plan, which includes the use of new Burroughs Tax Installment Machines, helps another community increase current tax collections to 99% of its real property and school levy.

**Who in your office should keep abreast of Burroughs developments and their application to current problems? Send us his name, and we shall be glad to keep him informed of new ways to save on office work.**

*Today's*
# Burroughs

**DOES THE WORK IN LESS TIME • WITH LESS EFFORT • AT LESS COST**

BURROUGHS ADDING MACHINE COMPANY
6757 Second Blvd., Detroit, Michigan

☐ I should like complete information immediately applying to_____

☐ Please place the following name on your list to receive information about new Burroughs developments.

Name_____ Title_____

Address_____

*Henry J. McKenzie, President, Sterling Pump Corporation*

## *Sterling Pump Corporation Has New President*

The Sterling Pump Corporation, Hamilton, Ohio, has announced the appointment, as President, of Henry J. McKenzie, formerly Executive Vice-President and General Manager, to succeed Maurice Rothschild. Mr. McKenzie will retain his duties as General Manager.

Starting in 1917 in the Engineering Department of Layne & Bowler Corporation, Los Angeles, Mr. McKenzie became District Manager, General Manager and Sales Manager, at Memphis, Tenn. Later he left Layne & Bowler to become Manager of the Turbine Pump Division of Worthington Pump & Machinery Corporation, at the Holyoke, Mass., plant.

## *New Special Catalog Issued by Eddy*

An unusually attractive and useful 84-page catalog has just been issued by Eddy Valve Co., Waterford, N. Y., containing 67 pages of illustrations of various Eddy products, with dimensions and sectional views covering the complete line of Eddy fire hydrants, gate-valves, adjustable valve-boxes, tapping-machine valves and tapping-machine sleeves, indicator posts, horizontal swing check-valves, multiple gate check-valves, vertical check-valves and vertical foot-valves, shear gates and flap-valves, combination automatic floats and poppet-valves, plug drain and by-pass valves, floor stands, and chain wheels and chain guides for gate-valves. Pages 69 to 82 are devoted to tables of exceedingly useful information used frequently by water-works operators and officials.

The catalog concludes with a well-prepared index, making it possible for the user to locate just what he wants quickly. The catalog is bound in red and silver covers.

## *Special Prize Awards to Users of C.I. Pipe*

James B. Clow & Sons, Chicago, Ill., manufacturers of Clow-National cast iron pipe and fittings, are conducting a contest aimed to develop new generally useful and acceptable ideas for the use of cast iron products in the construction and maintenance of underground water distribution systems, including pipe and fittings in the pumping station, water-treatment plants and sewage-treatment plants. The contest is open to all municipal officials, engineers, superintendents and operators engaged in the design, installation, operation, maintenance or repair of water-distribution systems, water-treatment plants or sewage-treatment plants, but no employee of the Clow-National organization is eligible for a prize.

No product or information shown in the eighth edition of "Pipe Economy," published by Clow, or on the "Thought Starter" list accompanying the folder on the contest will be accepted in the contest. All suggestions entered in this contest remain the property of the sender and do not necessarily have to be used in future issues of "Pipe Economy" to win a prize. Only the suggestions that are approved by the judges for a prize award will be acknowledged. All suggestions should be mailed to Frank J. Egan, Manager, Cast Iron Pipe and Foundry Department, James B. Clow & Sons, 201-299 North Talman Avenue, Chicago, Ill., and should be as explicit as possible so that there will be no misunderstanding. If the suggestion does not cover an item now being produced, detailed sketches should be included so that the suggestion will be fully understood.

The first prize is $250 cash or the winner's selection of either an RCA radio-phonograph-record combination, a brace of guns, or a man's Elgin platinum pocket watch. The second prize is $150 or a home-office ensemble including a Governor Winthrop secretary and kneehold desk, both in solid mahogany, and a Model 5 streamlined Remington portable typewriter, or a Bendix home laundry, which automatically washes, rinses and damp-dries clothes. The third prize is $100 or a Dresner rawhide luggage ensemble or a Dunbar sofa and chair ensemble. There are also 160 honorable-mention prizes of $5 each or a choice of comparable prizes.

Write today to Frank J. Eagan at the address above for a copy of the illustrated folder, "You May Have a Prize-Winning Idea," mentioning this item.

## *New Water-Works Units*

Pressure filters for water purification and a hot process water softener have been announced by Worthington Pump & Machinery Corporation, Harrison, N. J., in connection with this company's entrance into the water-purification field.

Bulletin W-210-B26 gives complete design details, photographs of installations, and sectional diagrams showing each of the features of these new pressure filters, which have capacities from 2.4 to 564 gallons per minute and range from 1 to 8 feet in diameter and up to 25 feet in length.

The new Worthington hot process water softener for the controlled application of the essentials of good boiler feed water purification consists of a chemical mixer, a chemical proportioner, a heater, a reaction-settling chamber, and a filter. Full details of this process will be found in Bulletin W-210-B27, and either or both of these bulletins will be sent free.

BUILDERS

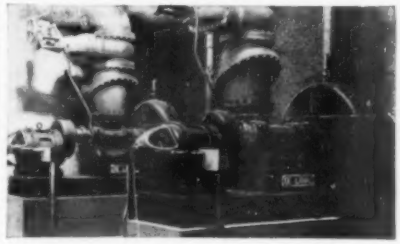
IMPROVED METERING AND CONTROLLING EQUIPMENT

THE TYPE M REGISTER • INDICATOR • RECORDER

Model D-1 retains the sturdy construction, simplicity of assembly, and large differential capacity which the "test of time" has demonstrated as essential for maintained reliability. In addition, special attention has been given to over-all attractiveness.

*Write for Bulletin* 324

BUILDERS - PROVIDENCE
IRON FOUNDRY RHODE ISLAND



*Two of six De Laval Clogless Pumps; 15 m.g.d each, against 15 ft. at 294 r.p.m pump speed.*

DE LAVAL
Motor-Driven Clogless Pumping Units

for unscreened sewage, or other liquids carrying large amounts of solids, show high wire to water efficiencies.

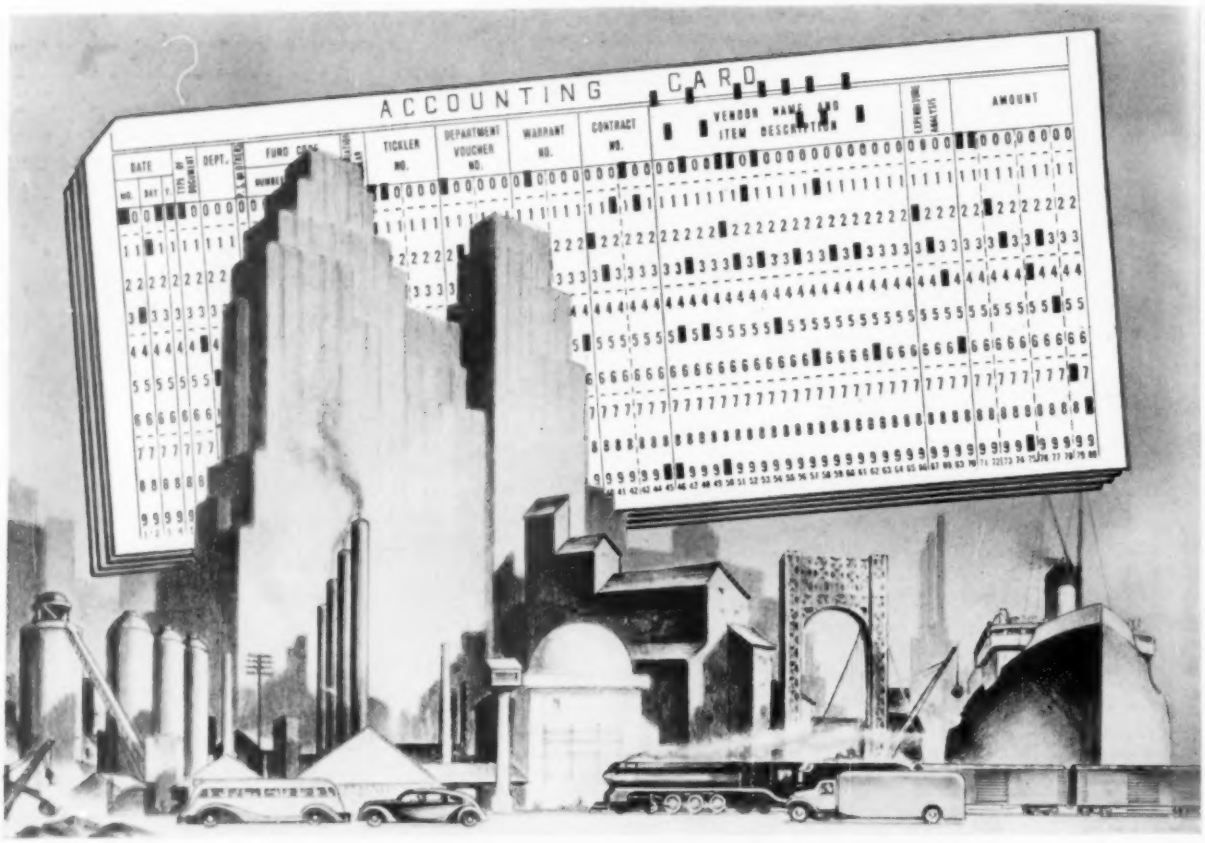
The De Laval clogless impeller, which has large passages, with no sharp corners where stringy materials may hang up, is run at a moderate speed.

Casing and impeller are protected by renewable wearing parts.

The casing is split in plane of shaft to give quick access to internal parts.

*Ask for Catalog B-1-3301*

DE LAVAL STEAMTURBINE CO.
TRENTON, NEW JERSEY




# For improved public services— put *Punched Card Accounting* behind the management of your city

Punched card accounting is today performing a valuable service to many progressive municipalities. By this method, departmental and divisional activities are brought to executive attention in ample time to be of assistance in proper control and disbursement of allotted funds.

Through the medium of punched cards, accurate recordings of all funds and expenditures are automatically obtained. Printed analyses for the week, month, and year-to-date are also quickly provided, as well as comparative analyses for any accounting periods.

Investigate the advantages in speed, accuracy and control which punched card accounting offers your city. Write today for full details. There is no obligation.

## INTERNATIONAL BUSINESS MACHINES CORPORATION

*World Headquarters Building*
590 MADISON AVENUE, NEW YORK, N. Y.

*Branch Offices*
IN PRINCIPAL CITIES OF THE WORLD

*George W. Malcomson*

## *Malcomson Promoted by Dodge Brothers*

George W. Malcomson has been appointed Assistant Sales Manager of the Truck Division, Dodge Brothers Corporation, Detroit, Mich. For two years prior to his present appointment Mr. Malcomson was Chicago Regional Manager for Dodge.

A native Detroiter, he joined the Dodge truck sales organization in the Special Equipment Division in 1930. Subsequently he was associated with the factory truck sales promotion and advertising departments and in 1933 was appointed truck representative in the Detroit and Chicago regions. In 1934 he was named Chicago City Manager and in 1936 became Regional Manager at Atlanta.

*The New Victor Adding Machine*

## *Brand-New Adder*

A small adding subtractor weighing only 11 pounds, in two sizes for listing six or eight columns respectively, was announced on October 3, 1940, by the Victor Adding Machine Co., 3900 North Rockwell Street, Chicago, Ill. The direct subtraction feature makes it useful in tax, payroll, utility and cost and other municipal accounting.

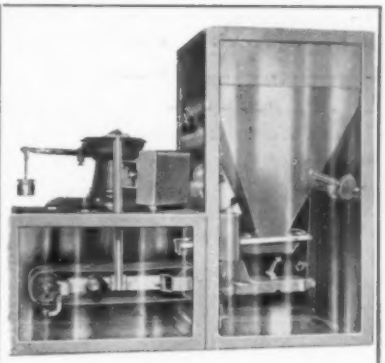
In July, 1939, this company brought out a full-keyboard portable adding machine; then in January, 1940, a similar machine with ten keys; and now this light-weight adding-subtracting machine to round out a line of modern adding machines.

## *Protective Coating for Metal and Wood*

A durable protective metallic coating for iron, steel and wood, which is applied like a paint and seals the surface with a sheet of metallic copper, has been developed by CopperCote, Inc., 331 Madison Ave., New York. Although applied with a brush or by spraying or dipping, CopperCote is not a paint but a liquid composition with fine particles of pure metallic copper held in suspension, providing any surface to which it is applied with an anti-corrosive non-scaling non-checking coating. It is quick-drying and quick-hardening and is unaffected by extremes of temperature.

In addition to standard CopperCote, there is also a special type of coating known as Marine CopperCote, for use on surfaces under water, such as boat bottoms, piling, piers and similar structures, which is resistant to the ravages of the Teredo and other destructive marine life as well as to the deteriorating effect of water. Another product of this company is Leafal, an aluminum coating. This is made in two types. Leafal A is an all-purpose aluminum coating of durability and lasting brilliance, according to the producer, and Leafal B is a heat-resisting and baking coating, particularly suitable for boilers, smokestacks, ovens and similar applications where heat is a problem. There is also a line of colored aluminums.

Among the many uses of CopperCote, Marine CopperCote and Leafal are the protection of steel bridges, towers, pipe lines, trestles, water tanks, fencing, and any other structure of metal or wood requiring protection against weathering and deterioration. Further information on these products may be secured direct from CopperCote, Inc., by mentioning this item, or from this magazine.

**The accurate way to feed dry chemicals is *by weight***

***SYNTRON***

***Offers a new, low-priced***

**"Weigh-Flow"**

**Dry Feeder Machine**

with which you can eliminate all guess work—and feed exactly the right amount—by weight.

**SYNTRON CO.**

**430 Lexington Ave., Homer City, Pa.**



ARMY TWILL BY REEVES SANFORIZED* REG. U.S. PAT. OFF. MADE TO GOVERNMENT SPECIFICATIONS

REEVES Glengarrie POPLIN

*Here's how these labels help build*

**PUBLIC CONFIDENCE!**

Appearances count first! Uniforms whose quality *implies* authority, efficiency, responsibility, help win confidence and good will.

**REEVES ARMY TWILL**

***meets U. S. Army requirements***

Specify uniforms of Reeves Army Twill. They will meet exacting tests for long wearing quality, enduring washability, fabric vitality that *holds* tailoring.

**GLENGARRIE POPLIN**

***for matching shirts***

Here is a durable, high-style fabric in a wide range of colors woven and finished by Reeves. At the top in quality but not in price.

Both Fabrics SANFORIZED* *Fabric shrinkage not more than 1% (U. S. Government test CCC-T-191-a).

"From Cotton to Cutter"

OVER 17,000,000 yards of Reeves Army Twill sold to the U. S. ARMY

**REEVES BROTHERS, INC.**

**54 WORTH STREET NEW YORK CITY**

# DEPENDABLE WEAPONS FOR SNOW FIGHTING

You wouldn't think of changing snow plows in the middle of a blizzard. So its mighty important to know in advance you are getting the right plows. For 32 years Baker Snow Plows have enjoyed an enviable reputation for sturdiness, dependability and economical performance. Bakers will never let you down.

The new line of Baker Truck Snow Plows includes many improved models in "V," reversible blade and one-way types for any motor truck.

*Send for attractive new Bulletin 829 on Truck Snow Plows—also special bulletins on tractor plows.*

A Baker Reversible Blade Snow Plow doing a clean job by getting right down to the pavement surface, thanks to the Baker Sectional Tripping Blades.

**THE BAKER MFG. CO.,** 503 Stanford Ave., Springfield, Illinois

# BAKER SNOW PLOWS

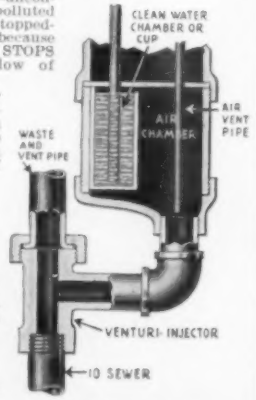
## HOW DOES THE "AIR LOCK" SAFEGUARD PUBLIC HEALTH?

**"Air Lock"**

**Anti-Freezing Outdoor Drinking Fountain**

The fresh water supply is pure—uncontaminated by polluted water from a stopped-up sewer — because the air lock STOPS the upward flow of pollution.

It is the only Outdoor Drinking Fountain that uses this old, well-known principle of hydraulics.




THE AIR LOCK

The **Murdock Mfg. & Supply Co.**
426 Plum St., Cincinnati, O.

*Write for folder*

# MURDOCK

SINCE 1833

The Most Reliable Name on Water Service Devices

★

# HOTEL CHELSEA

**ENJOYABLE THE YEAR 'ROUND**

Right on the Boardwalk, you'll bask in warm sunshine and bracing salt-sea air. You'll delight in our superb French Cuisine and sleep restfully in outside, ocean-view rooms. You'll find verandas and sun-decks for lazing, varied sports, entertainment, game room, magnificent Bar.

SPECIAL WEEKLY RATES

$6 DAILY RATES FROM ROOM, BATH & MEALS
$3 ROOM ONLY AND BATH PER PERSON, 2 IN ROOM

ATLANTIC CITY

JOEL HILLMAN • J CHRISTIAN MYERS • JULIAN A [illegible]

## Pamphlets on Water Rates and Service Charges

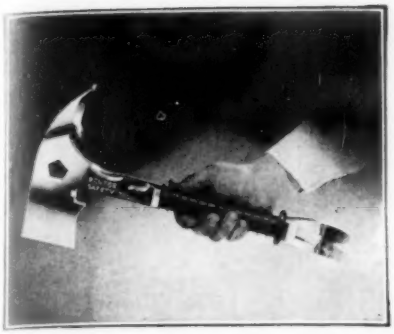
**The reprints of the Water Rates and Service Charges for 110 cities published in 1939 in THE AMERICAN CITY are now available at one dollar each.**

THE AMERICAN CITY, 470 Fourth Avenue, New York:

Reserve ..... copies of the 1940 reprint of "Water Rates and Service Charges" for me at $1 each. Send ..... copies of the January, 1955, reprint, and ..... copies of the January, 1956, reprint when the 1940 pamphlet is mailed. This gives me the advantage of the special rate of 50 cents each for the 1955 and 1956 pamphlets.

Name .....

Address .....



*The Benton Safety Tool*

## *Combination Safety Tool for Emergency Use*

A combination safety tool for use by fire and police departments, municipal airports, water works and sewage-treatment plants, hospitals, light and power plants, etc., is made by the Benton Tool Corporation, 425 Engineers Building, Cleveland, Ohio. This tool, made of chrome-plated special alloy steel with a rubber handle that is claimed to withstand electric shock up to 12,000 volts, was designed primarily for use in fire departments as a medium of safety for the protection of life from injury by fire.

More than one hundred functions are said to be embodied in this one tool, including those of an axe, an important feature because of the ease with which it will cut almost anything from soft wire cables, sheet metal, electric service wires and other materials; a pick-axe, chisel, crowbar, sheet-metal spreader and ripper, spanner wrench, nail puller, hydrant, sprinkler and gas wrench.

The total weight of this ingenious tool is 3¾ pounds, with correct balance to deliver efficient, quick, precise blows. It is available in a specially designed holster which can be fastened to the user's belt, or it can be had in a steel wall case with lock and breakable glass front.

## *Order for Huge Pumps Goes to Allis-Chalmers*

Two motor-driven centrifugal pumps rated at 375 cubic feet per second against a 19½-foot head are to be built by Allis-Chalmers Mfg. Co., Milwaukee, Wis., for the Sanitary District of Chicago. They are to be driven by 1,100-hp motors and are said to be among the largest centrifugal type pumps ever built. The contract for the pumps was $90,000.

The pumps will be placed in the Racine Avenue pumping station and will be used primarily for handling storm water. Four other identical pumps now in this station were built by Allis-Chalmers and installed last year. This station is the newest of the large pumping stations in the District.

Each of the 72-inch double-suction pumps has a capacity of approximately 240 mgd, which means that when the two additional pumps for which this contract calls are installed, the station will have a capacity of 1,500 mgd.

## *New Automatic Calculating Machine*

The automatic features of Sundstrand accounting machines have been retained in the new Sundstrand dual crossfooter machine, but the old principles have been eliminated.

This new machine is equipped with two separate crossfooters, controlled either manually or automatically. All crossfooter totals are printed automatically, the positive totals being printed in black and the negative totals in red. Each crossfooter functions automatically and is equipped with automatic direct subtraction and credit balance feature. With one writing, an amount may be repeated and entered in both crossfooters, may be added in both crossfooters, or may be added in either with subtraction in the other. Both crossfooters are served by one keyboard, thus keeping the operator's efforts concentrated within the "touch operation" area.

There are eight registers, each of which may be used independently or may be used jointly with either of the crossfooters. All registers are automatically controlled, and each register may be engaged in any column. Totals may be taken without affecting any register, or may be added into any one of the eight registers.

Further details regarding this new Sundstrand may be secured from the Underwood-Elliott Fisher Co., 1 Park Avenue, New York.

RUSTA RESTOR TRADE MARK REGISTERED PATS PEND.

RUST eats away the INSIDE of your STEEL TANK relentlessly and ceaselessly—STOP IT—with

RUSTA RESTOR

*(Electric rust-prevention method)*

Saves its cost in about two years in an average-size tank; about four years in a small elevated tank; and saves its cost in only one year when used in the largest tanks.

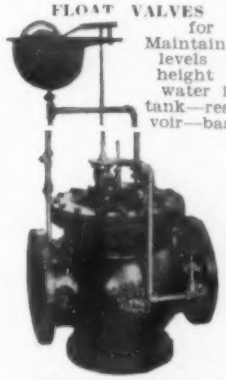
RUSTA RESTOR CORP.
1450 W. State Street
FREMONT OHIO

1879-ROSS-1879
AUTOMATIC VALVES

ALTITUDE VALVES
for
Control of elevation and heads into and out of tanks, basins and reservoirs.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.

REDUCING VALVES
for
Maintaining desired discharge pressure regardless of change in rate of flow.
1. Pressure reduction only.
2. Pressure reducing and reverse flow.
3. Combination assemblies—for control of pressure at inlet and outlet of valve.

FLOAT VALVES
for
Maintaining levels or height of water in tank—reservoir—basin.



1. Pilot operated with float and float chamber.
2. Pilot operated with float traveling between two stops, for upper and lower limit of water elevation.
3. Direct acting or indirect with lever.

Ross Valve Mfg. Co.
INCORPORATED
P. O. Box 596 Troy, N. Y.

# A NEW KIND OF FLEET CAR IS HERE!

**THE BIG NEW LOWEST-PRICE NASH OFFERS:**

- ★ 25 to 30 Miles per Gallon of Gasoline!
- ★ Flashing Pickup of New Flying Scot Engine!
- ★ More Seating Capacity than any lowest-price car!
- ★ A Coil Spring Ride on All Four Wheels!
- ★ New "Unitized" Steel Body—Safer, Quieter!
- ★ Improved Weather Eye Conditioned Air System ...and Convertible Bed!

## *To prove how great this new car is... Nash offers every large fleet operator a car to drive for 30 days without obligation!*

IT'S here today. The low-price car fleet owners hoped they'd someday see. —The kind of a car that only Nash could build!

It's big, sturdy, beautiful-looking. But just imagine it delivering 25 to 30 miles to the gallon in the hands of your average good driver!

Just imagine the money it can save on your operating costs every year! And we invite you to check this economy yourself—over your own routes, with your own drivers—for thirty days.

We want you to see how—with Nash's many new engineering developments—it will cut your operating costs on gas, oil, tires and maintenance.

From the wheels up—it's completely new. Instead of the usual bolted body and chassis, it has a new "unitized", welded steel body—used for the first time on cars costing less than $1,200. Safer, stronger—yet lighter, it adds extra mileage to tires and gas.

Instead of the usual fuel-wasting engine, Nash has the new economical "Flying Scot" engine—*Manifold-Sealed* with full pressure lubrication for dependable performance and long life.

Instead of ordinary springing, Nash offers something new in the lowest-price field—coil springs on *all four* wheels.

With its new Two-way Roller Steering, salesmen will find it quicker, easier to handle and park.

And it's made to order for winter! The new, improved Weather Eye Conditioned Air System keeps drivers going even in weather cold as 10° below. The Convertible Bed available in every Nash sedan provides a sleeping car for overnight trips.

Actually, no other car on the road today can offer you the comfort, the convenience, the all-around economy of this new, lowest-price Nash. It's ready for your inspection now. Why not see about starting the Nash 30-day test today?

If you are a large fleet operator, write W. A. Blees, General Sales Manager, Nash Motors Division, Nash-Kelvinator Corporation, Detroit, Michigan, and a car will be sent for trial.

*Business Coupe illustrated, delivered at the factory, including all standard equipment and Federal taxes . . .* **$731**

Weather Eye, Fourth Speed Forward, Convertible Bed; optional equipment at slight extra cost.

**NOW IT'S NEVER TOO COLD!**

Nash Weather Eye Conditioned Air System supplies drivers fresh air comfortably warm even at 10° below zero . . . can cut down sick days.

**EASIEST HANDLING CAR EVER BUILT!**

Nash's new *four-wheel* coil springing, Two-way Roller Steering let salesmen "take it-easy" on the route, yet make more calls per day.

**GO NASH AND SAVE MONEY EVERY MILE!**

*A. D. Cameron*

## *I.E.S. Elects Cameron as New President*

At the recent convention of the Illuminating Engineering Society, A. D. Cameron, Vice-President and Member of the Board of Directors of the Holophane Co., was elected President of I.E.S. He has served for many years on committees, was General Secretary for three years, and served as Vice-President for two years.

Born in Lockport, N. Y., Mr. Cameron received his training in electrical engineering at Penn State, and in 1910 entered the Street Lighting Department of the General Electric Co., at Lynn, Mass. He served with the A.E.F. during the first World War and since the war has held the rank of Major in the Reserve Corps.

*The New Aristocrat Parking Meter*

## *New Many-Featured Parking Meter*

A new streamlined Mark-Time Aristocrat parking meter, made by M. H. Rhodes, Inc., Hartford, Conn., has just been announced. Exclusive features claimed include a maximum-visibility revolving dial, which shows unused time in white, and the elapsed time or overtime in red. A device in the coin slot snaps up coins as they are inserted while the time interval is being set, and two minutes after the time interval is set the coin drops through, thus eliminating the possibility of half-setting. The last coin in the window drops into the coin box when the key is turned to unlock the door.

The Aristocrat is adaptable to any devised parking plan: a penny for short parking; a nickel for long parking; or both a penny and a nickel up to four pennies and a nickel.

The new Aristocrat is small and smartly designed. It is equipped with a Mark-Time clock movement with patented escapement, and is said to be unaffected by water, dust, cold or heat, shock or misaligned standard.

## *Dallas, Texas, to Have 1940 Asphalt Conference*

The Thirteenth National Asphalt Conference will be held at Dallas, Texas, during the week of December 9th, 1940. This conference is sponsored by The Asphalt Institute, with the United States Public Roads Administration, the State Highway Department of Texas, the Highway Research Board of the National Research Council and the Association of Asphalt Paving Technologists cooperating.

Because of the widespread use of asphalt in airport construction, supplementing its major uses in the surfacing of highways and streets, the Conference will stress the subject of national defense from the highway and airport angle.

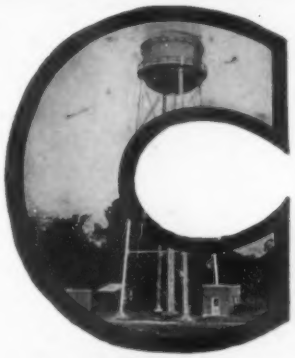
## *Pipe and Tank Coatings That Resist Corrosion*

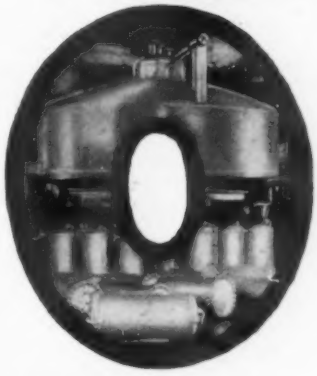
A new non-oil bearing coating known as Lin-Tite, which is in paint form but is not a paint, does not oxidize during the hardening period, nor is the vehicle burned out from the effects of the sun's rays or its environment, has been announced by Linings, Inc., 914 South Wabash Avenue, Chicago, Ill. The base of the coating is a synthetic resin with an inert clay filler.

Lin-Tite has been used successfully for coating galvanized iron, lead, concrete, floors and walls, wood tanks and fabric-covered canoes, rowboats, launches, acid ducts, etc., and for all kinds of pipe. It is resistant to electrolysis and abrasion, and retains sufficient resilience not to chip when struck after application.

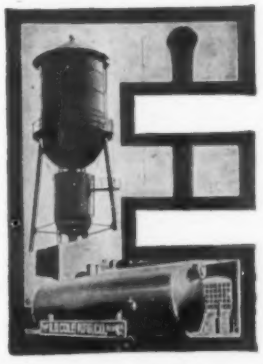
The methods of preparing pipe and other materials for the application of Lin-Tite products, the use of Lin-Tite insulation paint, and the methods of applying the primer and red and aluminum colored coatings, are described completely in a 24-page loose-leaf folder which will be sent to readers of THE AMERICAN CITY in the water and sewage field, particularly where the applications of these coatings are so numerous, if they will merely write to the manufacturer.

**Tank Builders For Over 80 Years!**





Tanks, Towers, Kettles, Kiers, Vats, Vessels, Bins, Boilers, Stacks, Standpipes and other fabricated platework from your specifications or ours.



*Write for "Tank Talk" — 6-A, or let us figure on your requirements.*

**R.D.COLE MFG.CO.**

Established in 1854

NEWNAN ··· GEORGIA

# Short Cut TO Economy

• Many a truck operator, after trying first one make then another, has standardized on Ford equipment. Others do it much sooner. They *start* with Ford Trucks and never change.

• If you're in the market for a new truck, take the short cut to economy. Get a Ford. And with it, get a brand-new idea of savings. Ask any Ford dealer about an "on-the-job" test.

## Here's Truck Value!

★ Choice of 2 improved V-8 engines—85 or 95 hp.

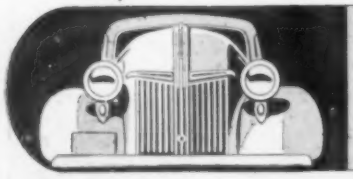
★ New 4-cylinder super-economy engine, optional in Commercial Cars and 122-inch trucks.

★ Beautiful modern styling—an important asset to your business.

★ Rugged, dependable full-floating rear axles in all trucks. ¾-floating in Commercial Cars.

★ Improved rear springs (main and auxiliary) on Regular and C.-O.-E. Trucks for heavy duty.

## FOR '41 - PUT A FORD TO WORK!

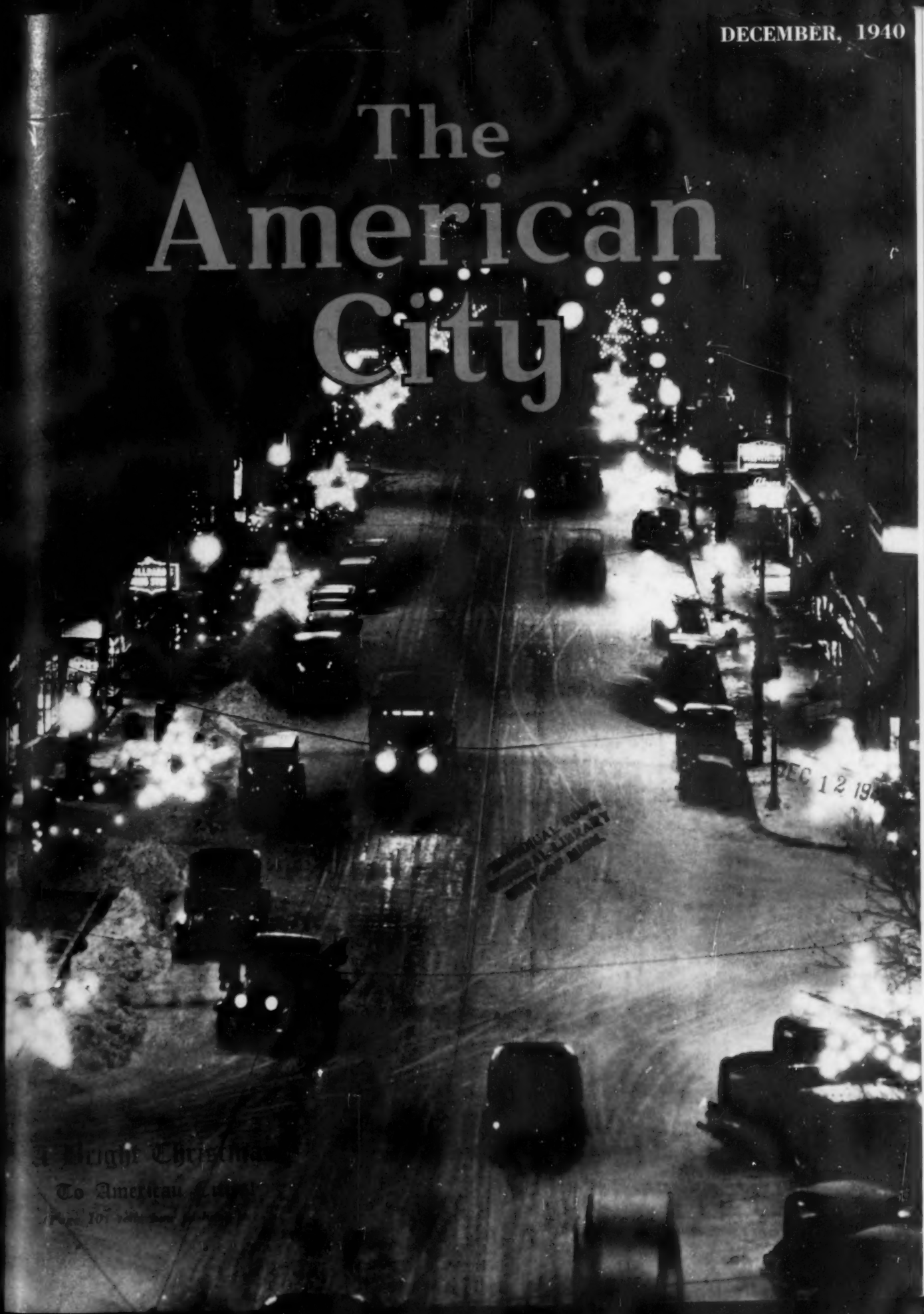


## 1941 FORD TRUCKS

FORD MOTOR COMPANY, BUILDERS OF FORD V-8 AND MERCURY CARS, FORD TRUCKS, COMMERCIAL CARS, STATION WAGONS AND TRANSIT BUSES

DECEMBER, 1940

# The American City

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